This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a Minor, Municipal permit. The discharge results from the operation of a 0.014 MGD wastewater treatment plant. This permit action consists of updating the WQS and updating boilerplate. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260-00 *et seq.*

1. Facility Name and Mailing Address: Locust Grove Elementary School Wastewater Treatment Plant, 200 Dailey Drive, Orange, VA 22960 — SIC Code : 4952 WWTP

   Facility Location: 31230 Constitution Highway Orange, VA 22960 — County: Orange

   Facility Contact Name: Mr. Roy Walton, Acting Superintendent — Telephone Number: (540) 661-4550

2. Permit No.: VA0078131 — Expiration Date of previous permit: November 2, 2008

   Other VPDES Permits associated with this facility: N/A

   Other Permits associated with this facility: N/A

   E2/E3/E4 Status: N/A

3. Owner Name: Orange County School Board

   Owner Contact/Title: Mr. Roy Walton, Acting Superintendent — Telephone Number: (540) 661-4550

4. Application Complete Date: May 8, 2008

   Permit Drafted By: Joan C. Crowther — Date Drafted: 12/9/08

   Draft Permit Reviewed By: Alison Thompson — Date Reviewed: 12/15/08

   Public Comment Period : Start Date: 1/29/09 — End Date: 2/27/09

5. Receiving Waters Information: See Attachment 1 for the Flow Frequency Determination

Receiving Stream Name :	Cormack Run, UT		
Drainage Area at Outfall:	0.04 sq.mi.	River Mile:	0.9
Stream Basin:	Rappahannock River	Subbasin:	None
Section:	N/A	Stream Class:	III
Special Standards:	None	Waterbody ID:	VAN-E17R
7Q10 Low Flow:	0.0 MGD	7Q10 High Flow:	0.0 MGD
1Q10 Low Flow:	0.0 MGD	1Q10 High Flow:	0.0 MGD
Harmonic Mean Flow:	0.0 MGD	30Q5 Flow:	0.0 MGD
303(d) Listed:	Yes	30Q10 Flow:	0.0 MGD
TMDL Approved:	Yes	Date TMDL Approved:	April 28, 2008

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

   ✓ State Water Control Law
   ✓ Clean Water Act
   ✓ VPDES Permit Regulation
   ✓ EPA NPDES Regulation
   ___ EPA Guidelines
   ✓ Water Quality Standards

7. Licensed Operator Requirements: Class IV

8. Reliability Class: Class II

9. Permit Characterization:

___ Private	___ Effluent Limited	___ Possible Interstate Effect
___ Federal	✓ Water Quality Limited	___ Compliance Schedule Required
___ State	___ Toxics Monitoring Program Required	___ Interim Limits in Permit
✓ POTW	___ Pretreatment Program Required	___ Interim Limits in Other Document
✓ TMDL		

10. Wastewater Sources and Treatment Description:

The wastewater flow from the middle school discharges into two septic tanks operated in series prior to facility's pump station where it joins the wastewater from the elementary school. The wastewater flows through a bar screen and then into an equalization basin. The wastewater then enters a splitter box dividing the flow between two extended aeration basin plants, including screening, aeration basins, clarification, and aerobic digestion. Wastewater from both extended aeration facilities is joined to be treated by chlorination, dechlorination and post aeration prior to its discharge into the unnamed tributary to Cormack Run.

On November 9, 2003, a Certificate to Operate (CTO) was issued for the addition of a duplex pump station and an additional 7,500 gallon per day extended aeration basin, with flow equalization and sludge holding tank. New chlorine disinfection and dechlorination units to serve both treatment trains were also installed. The complete sewage treatment works was rated at a flow capacity of 0.014 MGD with the issuance of this CTO.

See Attachment 2 for a facility diagram.

TABLE 1 – Outfall Description

Outfall Number	Discharge Sources	Treatment	Design Flow	Outfall Latitude and Longitude
001	Domestic Wastewater	See Item 10 above.	0.014 MGD	38° 17' 45" N 77° 49' 53" W

See Attachment 3 for Mine Run (DEQ #180D) topographic map.

11. Sludge Treatment and Disposal Methods:

The sludge from the wastewater treatment plant is transported to the Spotsylvania County's Massaponax Wastewater Treatment Plant is located at 10900 HCC Drive, Fredericksburg, Virginia, 22408. Approximately 0.25 dry metric tons per a 365-day period is transported from this wastewater treatment plant to be treated.

12. Discharges and Monitoring Stations in Vicinity of Discharge

TABLE 2

Permit Number or Stream ID Number	VPDES Permit Facility or Stream Monitoring Station Description
VAR051746	Colonial Pipeline – Locust Grove, Industrial Discharge (oil and water separator); Facility discharges into an unnamed tributary to Mine Run
3-MIR004.05	DEQ Ambient Water Monitoring Station located on Mine Run (Latitude and Longitude 38º 20' 36" / 77º 55' 33"); approximately 7.4 river miles downstream of Locust Grove Elementary School's Discharge point.

13. Material Storage:

TABLE 3 - Material Storage		
Materials Description	**Volume Stored**	**Spill/Stormwater Prevention Measures**
Chlorination tablets	100 lbs.	Stored in building on-site
Dechlorination tablets	100 lbs.	Stored in building on-site
Soda Ash	200 lbs. (max)	Stored in building on-site

14. Site Inspection: Performed by Terry Nelson, NRO Water Compliance Inspector on April 20, 2005. (See Attachment 4).

15. Receiving Stream Water Quality and Water Quality Standards:

a) Ambient Water Quality Data

DEQ has no ambient water quality monitoring data for the receiving stream (Cormack Run, UT). The nearest downstream monitoring station is a DEQ ambient water quality monitoring station (3-MIR004.05) located on Mine Run at State Route 611, approximately 7.37 miles downstream from Locust Grove Wastewater Treatment Plant's discharge point. Cormack Run is a tributary to Mine Run. Included in the 2009 permit reissuance file is the April 2000 through June 2005 ambient water quality monitoring data for this station. Sampling of this watershed station ended in 2005 but will be reactivated as a watershed station in 2009. The ambient water quality monitoring data for Mine Run at Route 611 for average hardness (27 mg/l), 90th percentile temperature (22ºC) and 90th percentile pH (7.29 S.U.) was used to determine the water quality criteria and wasteload allocation analysis for this facility. This Mine Run ambient water quality data was not used in any permit calculations due to the long distance (7.37 miles) from the facility's discharge point.

The receiving stream, Cormack Run, UT, discharges into Cormack Run, which in turn discharges into Mine Run. Mine Run at segment VAN-E17R_MIR01A00 is listed as impaired for *E. coli* bacteria. Sufficient excursions from the instantaneous E. coli bacteria criterion (7 of 19 samples - 36.8%) were recorded at DEQ's ambient water quality monitoring station (3-MIR004.05) at the Route 611 crossing to assess this stream segment as not supporting of the recreation use goal for the 2008 water quality assessment.

See Attachment 5 for the Planning Statement.

b) Receiving Stream Water Quality Criteria

Part IX of 9 VAC 25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream, Cormack Run, UT is located within Section 4 of the Rappahannock River Basin, and classified as a Class III water.

At all times, Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32°C, and maintain a pH of 6.0-9.0 standard units (S.U.).

Attachment 6 details other water quality criteria applicable to the receiving stream.

Ammonia:

The 7Q10 and 1Q10 of the receiving stream are 0.0 MGD. In cases such as this, effluent pH and temperature data may be used to establish the ammonia water quality standard. See Attachment 7. The monthly maximum effluent pH data was used to determine the 90th percentile value (7.7 S.U. date from January 2000 through October 2008). Because no effluent temperature values were available, the default value of 25ºC was used.

Metals Criteria:

The Water Quality Criteria for some metals are dependent on the receiving stream's hardness (expressed as mg/l calcium carbonate). The 7Q10 of the receiving stream is zero and no ambient data is available, the effluent data for hardness can be used to determine the metals criteria. The hardness-dependent metals criteria in Attachment 8 are based on an effluent value of 88.6 mg/L. This hardness value was determined by averaging the effluent hardness data collected from February 1994 to April 1998.

Bacteria Criteria:

The Virginia Water Quality Standards (9 VAC 25-260-170 B.) states sewage discharges shall be disinfected to achieve the following criteria:

1) *E. coli* bacteria per 100 ml of water shall not exceed the following:

Freshwater *E. coli* (N/100 ml)	Geometric Mean[1]	Single Sample Maximum
	126	235

[1]For two or more samples [taken during any calendar month].

c) Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9 VAC 25-260-360, 370 and 380) designate the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, Cormack Run, UT, is located within Section 4 of the Rappahannock River Basin. This section has no special standards designations.

d) Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched on November 13, 2008 for records to determine if there are threatened or endangered species in the vicinity of the discharge. No threatened or endangered species were identified. See Attachment 9.

16. Antidegradation (9 VAC 25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 1 due to the 7Q10 flow of 0.0 MGD. Permit limits proposed have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development :

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA) are calculated. In this case since the critical flows 7Q10 and 1Q10 have been determined to be zero, the WLA's are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are based on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a) Effluent Screening:

No additional effluent testing was required to be analyzed for this facility so no additional pollutants require a wasteload allocation analysis.

b) Mixing Zones and Wasteload Allocations (WLAs):

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f) (Q_s)] - [(C_s) (f) (Q_s)]}{Q_e}$$

Where:
- WLA = Wasteload allocation
- C_o = In-stream water quality criteria
- Q_e = Design flow
- Q_s = Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
- f = Decimal fraction of critical flow
- C_s = Mean background concentration of parameter in the receiving stream.

The water segment receiving the discharge via Outfall 001 is considered to have a 7Q10 and 1Q10 of 0.0 MGD. As such, there is no mixing zone and the WLA is equal to the C_o.

Staff derived wasteload allocations where parameters are reasonably expected to be present in an effluent (e.g., total residual chlorine where chlorine is used as a means of disinfection) and where effluent data indicate the pollutant is present in the discharge above quantifiable levels. With regard to the Outfall 001 discharge, ammonia as N is likely present since this is a WWTP treating sewage and total residual chlorine may be present since chlorine is used for disinfection. As such, Attachment 6 details the WLA derivations for these pollutants.

c) Effluent Limitations Toxic Pollutants, Outfall 001 –

9 VAC 25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9 VAC 25-31-230.D. requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N/TKN:

Staff used pH data (monthly maximum pH values from January 2000 through October 2008) and temperature default value of 25 ºC to derive the ammonia criteria.

Because the effluent flow frequency is intermittent in nature, only the acute ammonia criterion is used to determine the ammonia effluent limitation. Based on this, the ammonia monthly average and weekly maximum effluent limitations required to maintain water quality standards in the receiving stream would be 14 mg/L. Since the stream model conducted on August 17, 1998 required a TKN monthly average limitation of 8.0 mg/L and a weekly maximum limitation of 12 mg/L to maintain the dissolved oxygen in the receiving stream and TKN is the sum of organic nitrogen, ammonia (NH_3) and ammonium (NH_4^+), the TKN effluent limitation of 8.0 mg/L will ensure that the ammonia effluent limitation of 14 mg/L is being complied with. There is no need to include the ammonia monthly or weekly effluent limitation in the permit. See Attachment 10 for the Ammonia effluent limitations calculations.

2) Total Residual Chlorine:

Chlorine is used for disinfection and is potentially in the discharge. Staff calculated WLAs for TRC using current critical flows and the mixing allowance. In accordance with current DEQ guidance, staff used a default data point of 0.2 mg/L and the calculated WLAs to derive limits. A monthly average of 0.008 mg/L and a weekly average limit of 0.010 mg/L are proposed for this discharge (see Attachment 11).

3) Metals/Organics:

No limits are needed.

d) Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to dissolved oxygen (D.O.), carbonaceous biochemical oxygen demand-5 day ($CBOD_5$), total suspended solids (TSS), total kjeldahl nitrogen (TKN), and pH limitations are proposed.

Dissolved Oxygen, $CBOD_5$, and TKN limitations are based on the stream modeling conducted in August 17, 1998 (Attachment 12) and are set to meet the water quality criteria for D.O. in the receiving stream. Since the receiving stream is intermittent and the 7Q10 flow is zero, the stream model was run to maintain a D.O. of 5 mg/L. The stream model used a stream length of 1.7 miles determined that the D.O. was maintained. At 0.6 rivermile downstream from the discharge, the D. O. in the stream started to recover with a design flow of 0.014 MGD and these effluent limitations: $CBOD_5$ of 17 mg/L; TKN of 8 mg/L and D.O. of 6 mg/L.

It is staff's practice to equate the Total Suspended Solids limits with the BOD_5/$CBOD_5$ limits. TSS limits are established to equal BOD_5 limits since the two pollutants are closely related in terms of treatment of domestic sewage.

pH limitations are set at the water quality criteria.

E. coli limitations are in accordance with the Water Quality Standards 9 VAC25-260-170.

e) Effluent Limitations and Monitoring Summary.

The effluent limitations are presented in the following table. Limits were established for Flow, $CBOD_5$, Total Suspended Solids, TKN, pH, Dissolved Oxygen, Total Residual Chlorine, and *E. coli*.

The limit for Total Suspended Solids is based on Best Professional Judgement.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/l), with the flow values (in MGD) and a conversion factor of 3.785.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

18. Antibacksliding:

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

19. Effluent Limitations/Monitoring Requirements:

Design flow is 0.014 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	N/A	NL	N/A	N/A	NL	1/D	Estimate
pH	2	N/A	N/A	6.0 S.U.	9.0 S.U.	1/D	Grab
$CBOD_5$	2,4	17 mg/L 0.90 kg/day	26 mg/L 1.4 kg/day	N/A	N/A	1/M	Grab
Total Suspended Solids (TSS)	1	17 mg/L 0.90 kg/day	26 mg/L 1.4 kg/day	N/A	N/A	1/M	Grab
DO	2	N/A	N/A	6.0 mg/L	N/A	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	2,4	8.0 mg/L 0.40 kg/day	12 mg/L 0.6 kg/day	N/A	N/A	1/M	Grab
E. coli (Geometric Mean)	2	126 n/100mls	N/A	N/A	N/A	2/M	Grab
Total Residual Chlorine (after contact tank)	2,3	N/A	N/A	1.0 mg/L	N/A	1/D	Grab
Total Residual Chlorine (after dechlorination)	3	0.008 mg/L	0.010 mg/L	N/A	N/A	1/D	Grab

The basis for the limitations codes are:
1. Best Professional Judgement
2. Water Quality Standards
3. DEQ Disinfection Guidance
4. Stream Model- Attachment 12

MGD = Million gallons per day.
N/A = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.

1/D = Once every day.
1/M = Once every month.
2/M = Twice every month at least 7 days apart.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

20. Other Permit Requirements :

a) Part I.B. of the permit contains additional chlorine monitoring requirements, quantification levels and compliance reporting instructions.

A minimum chlorine residual must be maintained at the exit of the chlorine contact tank to assure adequate disinfection. No more that 10% of the monthly test results for TRC at the exit of the chlorine contact tank shall be <1.0 mg/L with any TRC <0.6 mg/L considered a system failure. Monitoring at numerous STPs has concluded that a TRC residual of 1.0 mg/L is an adequate indicator of compliance with the *E. coli* criteria. *E. coli* limits are defined in this section as well as monitoring requirements to take effect should an alternate means of disinfection be used.

9 VAC 25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9 VAC 25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

21. Other Special Conditions :

a) 95% Capacity Reopener. The VPDES Permit Regulation at 9 VAC 25-31-200.B.2. requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.

b) O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790; VPDES Permit Regulation, 9 VAC 25-31-190.E. Within 90 days of the effective date of this permit, the permittee shall submit a statement confirming the accuracy and completeness of the current O&M Manual to the Department of Environmental Quality, Northern Regional Office (DEQ-NRO). Future changes to the facility must be addressed by the submittal of a revised O&M Manual within 90 days of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.

c) Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9 VAC 25-31-200 D, and Rules and Regulations for Waterworks and Wastewater Works Operators (18 VAC 160-20-10 et seq.) requires licensure of operators. This facility requires a Class IV operator.

d) Reliability Class. The Sewage Collection and Treatment Regulation at 9 VAC 25-790 requires sewerage works achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. The facility is required to meet a Reliability Class of II.

e) CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.

f) Water Quality Criteria Reopener. The VPDES Permit Regulation at 9 VAC 25-31-220 D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate water quality-based limitations.

g) Sludge Use and Disposal. The VPDES Permit Regulation at 9 VAC 25-31-100.P., 220.B.2., and 420-720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.

h) Sludge Reopener. The VPDES Permit Regulation at 9 VAC 25-31-200.C.4. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.

Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

23. Changes to the Permit from the Previously Issued Permit:

a) Special Conditions:

1) Deleted the "Bacterial Effluent Limitation and Monitoring Requirement" Special Condition. This special condition was complied with during the last permit reissuance cycle and is no longer necessary.

2) Deleted the "Indirect Dischargers" Special Condition. This special condition is not applicable to this permit reissuance because the permittee owns both schools that discharge to the wastewater treatment plant. No other entities discharge into the wastewater treatment plant.

3) Deleted the "Treatment Works Closure Plan" Special Condition. This special condition is not applicable because its purpose is to ensure that privately owned wastewater treatment plants are properly closed should the plant is expanded, upgraded or closed. This plant is a publicly owned.

b) Monitoring and Effluent Limitations:

An effluent limitation for *E. coli* bacteria was added to the permit due to the TMDL that was approved April 28, 2008 by EPA. Please Section 26 of the Fact Sheet for more information regarding this TMDL.

24. Variances/Alternate Limits or Conditions:

This permit contains no variances, alternate limits or conditions.

25. Public Notice Information:

First Public Notice Date: January 29, 2009 Second Public Notice Date: February 5, 2009

Public Notice Information is required by 9 VAC 25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3925, jccrowther@deq.virginia.gov. See Attachment 13 for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

26. 303 (d) Listed Stream Segments and Total Max. Daily Loads (TMDL):

The facility discharges directly to Cormack Run, UT which is a tributary to Cormack Run which in turn discharges into Mine Run. Mine Run at segment VAN-E17R_MIR01A00 is listed as impaired for *E. coli* bacteria. Sufficient excursions from the instantaneous E. coli bacteria criterion (7 of 19 samples - 36.8%) were recorded at DEQ's ambient water quality monitoring station (3-MIR004.05) at the Route 611 crossing to assess this stream segment as not supporting of the recreation use goal for the 2008 water quality assessment. See Attachment 14 for the 2006 and 2008 TMDL fact sheets.

A bacteria TMDL for the Mine Run watershed was submitted to EPA and approved November 15, 2005. The sources of bacteria requiring reductions are pet, livestock and wildlife waste delivered directly to the stream or via pastureland or forest, human contributions from straight pipes and failing septic systems, and biosolid application.

A modification to the Mine Run TMDL was approved by EPA on April 28, 2008. The purpose of the modification was to include a WLA for Locust Grove Elementary School, which was inadvertently omitted from the original TMDL, and to include an allocation for future growth of point sources in the watershed.

The facility was given a WLA for *E. coli* (2.44E+10 cfu/year) in the TMDL modification that was approved by EPA on 4/28/2008. The permit has limit of 126 n/100mls for *E. coli* that is in compliance with the TMDL.

TMDL Reopener: This special condition is to allow the permit to reopened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.

27. Additional Comments:

Previous Board Action(s): None

Staff Comments: None

Public Comment: No comments were received during the public notice. Due to the TMDL listed impairment (*E. coli*), the draft permit and fact sheet was reviewed by EPA and

EPA Checklist: The checklist can be found in Attachment 15.

Locust Grove Elementary School Wastewater Treatment Plant
Fact Sheet Attachments

Attachment	Description
1	Flow Frequency Memo dated March 9, 1998
2	Facility Diagram
3	USGS Topographic Map – Mine Run
4	Site Inspection Report dated April 20, 2005 by Terry Nelson, DEQ-NRO Water Inspector
5	Planning Statement for Locust Grove Elementary School, dated May 15, 2008
6	Freshwater Water Quality Criteria/ Wasteload Allocated Analysis dated December 4, 2008
7	Monthly Maximum Effluent pH data January 2000 through October 2008
8	Effluent Hardness dated collected from February 1994 through April 1998
9	DGIF Threatened and Endangered Species Database Search dated November 13-14, 2008
10	Ammonia Effluent Calculation dated December 4, 2008
11	Total Chlorine Residual Calculation dated November 17, 2008
12	Stream Model dated August 17, 1998
13	Public Notice
14	2006 and 2008 TMDL Mine Run Fact Sheets
15	EPA Checklist dated December 9, 2008

Attachment 1

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
Water Quality Assessments and Planning
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240

SUBJECT: Flow Frequency Determination
Locust Grove Elementary School - #VA0078131

TO: James A. Olson, NRO

FROM: Paul E. Herman, P.E., WQAP

DATE: March 9, 1998

COPIES: Ron Gregory, Charles Martin, File

This memo supercedes Charles Martin's December 30, 1992 memo to Joan Crowther concerning the subject VPDES permit.

The Locust Grove Elementary School discharges to an unnamed tributary to the Cormack Run near Locust Grove, VA. Stream flow frequencies are required at this site by the permit writer for the purpose of calculating effluent limitations for the VPDES permit.

At the discharge point, the receiving stream is shown to be intermittent on the USGS Mine Run Quadrangle topographic map. The flow frequencies for intermittent streams are 0.0 cfs for the 1Q10, 7Q10, 30Q5, high flow 1Q10, high flow 7Q10, and harmonic mean. Flow frequencies have been determined for the first perennial reach downstream of the discharge point which occurs at the Cormack Run.

The USGS conducted several flow measurements on the Mine Run in 1951, 1953, 1981 to 1984, and 1989 to 1992. The measurements were made at the Route 611 bridge at Burr Hill, VA. The measurements made by the USGS were correlated with the same day daily mean values from two continuous record gages; one on the Hazel River at Rixeyville, VA #01663500 and the second on the Po River near Spotsylvania, VA #01673800. For each reference gage, the measurements and daily mean values were plotted by the USGS on a logarithmic graph and a best fit line was drawn through the data points. The required flow frequencies from each reference gage were plotted on the regression line and the associated flow frequencies at the measurement site were determined from the graph. The flow frequencies for the measurement site were determined by taking an average of the values determined from each of the plots.

The flow frequencies at the perennial point were determined by using the values at the measurement site and adjusting them by proportional drainage areas. The data for the reference gages, the measurement site and the perennial point are presented below:

Po River near Spotsylvania, VA (#01673800):

Drainage Area = 77.4 mi^2

1Q10 = 0.12 cfs	High Flow 1Q10 = 5.8 cfs
7Q10 = 0.17 cfs	High Flow 7Q10 = 8.6 cfs
30Q5 = 0.74 cfs	HM = 4.2 cfs

Hazel River at Rixeyville, VA (#01663500):

Drainage Area = 287 mi^2

1Q10 = 3.8 cfs	High Flow 1Q10 = 64 cfs
7Q10 = 5.7 cfs	High Flow 7Q10 = 74 cfs
30Q5 = 19 cfs	HM = 86 cfs

Mine Run at Route 611 at Burr Hill, VA (#01667850):

Drainage Area = 31.8 mi^2

1Q10 = 0.05 cfs	High Flow 1Q10 = 2.9 cfs
7Q10 = 0.08 cfs	High Flow 7Q10 = 4.0 cfs
30Q5 = 0.42 cfs	HM = 3.1 cfs

Cormack Run above UT discharge receiving stream (perennial point):

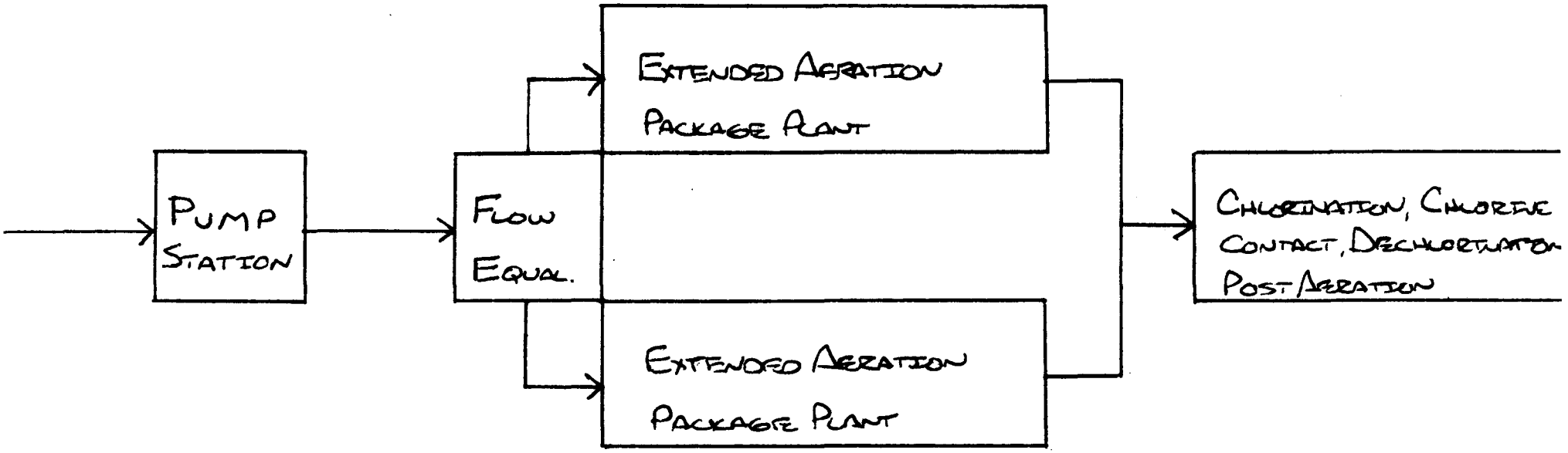
Drainage Area = 5.18 mi^2

1Q10 = 0.008 cfs	High Flow 1Q10 = 0.47 cfs
7Q10 = 0.013 cfs	High Flow 7Q10 = 0.65 cfs
30Q5 = 0.068 cfs	HM = 0.50 cfs

The high flow months are January through May.

This analysis assumes there are no significant discharges, withdrawals or springs influencing the flow in the Cormack Run upstream of the perennial point.

If there are any questions concerning this analysis, please let me know.



Locust Grove Elementary School
Wastewater Treatment Plant Schematic
from VPDES Permit Application received May 2008


Locust Grove Elementary School (11/17/08)
77°56.000' W
77°54.000' W
77°52.000' W
77°50.000' W
77°48.000' W
WGS84 77°45.000' W
38°22.000' N
38°20.000' N
38°18.000' N
38°16.000' N
38°14.000' N
38°12.000' N
CULPEPER CO
ORANGE CO
ORANGE CO
SPOTSYLVANIA CO
Germanna Bridge
Germanna Comm College
Raccoon Ford
True Blue
Elat Run
DEQ AWQ Station on Mine Run (3-MIR004.05)
Burr Hill
Bledsoe Corner
Lake of The Woods
Locust Grove
Locust Grove Elementary School Discharge Location
Sleets Shop
Colonial Pipeline - Locust Grove
VAR051746
Rhoadesville
Verdiersville
Gold Dale
Parker
Mine Run
Paytes
Richards Shop
Vulcan
Tatum
Logan
Porters
Map created with TOPO! © 2006 National Geographic
NATIONAL GEOGRAPHIC
0.0 0.5 1.0 1.5 2.0 2.5 3.0 miles
0 1 2 3 4 5 km
MN TN
10°
11/17/08
3

April 25, 2005

Mr. Dave Baker
Superintendent of Schools
Orange County School Board
437 Waugh Boulevard
Orange, VA 22960

Re: Locust Grove Elementary School STP Inspection, Permit VA0078131

Dear Mr. Baker:

Enclosed are copies of the facility technical and laboratory inspection reports generated from observations made while performing a site inspection at the Locust Grove Elementary School facility on April 20, 2005. The compliance/monitoring staff would like to thank your staff for their time and assistance during the inspection.

Summaries for both the technical and laboratory inspections are enclosed. The facility had No Deficiencies for the laboratory inspection. Please note the requirements and recommendations addressed in the technical summary, especially with regards to stormwater management. Please submit in writing a progress report to this office by **May 23, 2005** for the items addressed in the summary.

If you have any questions or comments concerning this report, please feel free to contact me at the Northern Virginia Regional Office at (703) 583-3833 or by E-mail at twnelson@deq.virginia.gov.

Sincerely,

Terry Nelson
Environmental Specialist II

cc: Permits / DMR File
Compliance Manager
Compliance Auditor
Compliance Inspector
OWPS - Bill Purcell
Doug Crooksl

DEQ
WASTEWATER FACILITY INSPECTION REPORT
PREFACE

VPDES/State Certification No.	(RE) Issuance Date	Amendment Date	Expiration Date
VA0078131	**11/03/2003**		**11/02/2008**

Facility Name	Address	Telephone Number
Locust Grove Elementary School	**31230 Constitution Hwy Locust Grove, VA**	**(540) 661-4420**
Owner Name	Address	Telephone Number
Orange County Public Schools	**437 Waugh Blvd Orange, VA 22960**	**(540) 661-4550**
Responsible Official	Title	Telephone Number
Mr. Dave Baker	**Superintendent**	**(540) 661-4550**
Responsible Operator	Operator Cert. Class/number	Telephone Number
Douglas Crooks	**1909000367**	**(540) 373-0380**

TYPE OF FACILITY:

DOMESTIC				**INDUSTRIAL**			
Federal		Major		Major		Primary	
Non-federal	**X**	Minor	**X**	Minor		Secondary	

INFLUENT CHARACTERISTICS:	DESIGN:
Flow	**6,000 gal/day**
Population Served	**Variable**
Connections Served	**One school**
BOD_5	
TSS	

EFFLUENT LIMITS: (mg/L unless specified)

Parameter	Min.	Avg.	Max.	Parameter	Min.	Avg.	Max.
Flow (MGD)		**0.006**		**$CBOD_5$**		**17**	**26**
TSS		**17**	**26**	**Water Temp (°C)**		**NL**	**NL**
pH (SU)	**6.0**		**9.0**	**Total Contact Cl**	**1.0**		
DO	**6.0**			**Inst Tech Min Cl**	**0.6**		
TKN		**8**	**12**	**Inst Res Max Cl**		**0.008**	**0.010**

Receiving Stream	**UT to Cormack Run**
Basin	**Rappahannock River**
Discharge Point (LAT)	**38° 17' 79" N**
Discharge Point (LONG)	**77° 49' 75" W**

VPDES NO. VA0078131

REV 5/00
WASTEWATER FACILITY

DEQ

INSPECTION REPORT
PART 1

Inspection date: **April 20, 2005**

Date form completed: **April 22, 2005**

Inspection by: **Terry Nelson**

Inspection agency: **DEQ NRO**

Time spent: **4 hours**

Announced: **Yes** No

Reviewed by:

Scheduled: **Yes** No

Present at inspection: **Douglas Crooks, Robert Barhsm (Dabney & Crooks)**

TYPE OF FACILITY:

	Domestic	**Industrial**	
[ ] Federal	[ ] Major	[ ] Major	[ ] Primary
[**X**] Nonfederal	[**X**] Minor	[ ] Minor	[ ] Secondary

Type of inspection:

[**X**] Routine
[ ] Compliance/Assistance/Complaint
[ ] Reinspection

Date of last inspection: **March 11, 1998**
Agency: **DEQ NRO**

Population served: **Variable**

Connections served: **One school**

Last month average: (Influent) Month/year: **No data**

Last month average: (Effluent) Month/year: **February 2005**

Flow:	**4600**	GPD	pH:	**7.7**	s.u.	TSS:	**9.4** mg/L
DO	**6.7**	mg/L	TKN	**2.35**	mg/L	$CBOD_5$	**9** mg/L

Quarter average: (Effluent) **December 2004, January 2005, February 2005**

Flow:	**3900**	GPD	pH:	**7.1**	s.u.	TSS:	**8.2** mg/L
DO	**6.6**	mg/L	TKN	**7.62**	mg/L	$CBOD_5$	**9** mg/L

DATA VERIFIED IN PREFACE [**X**] Updated [ ] No changes

Has there been any new construction? [ ] Yes [**X**] No

If yes, were plans and specifications approved? [ ] Yes [ ] No [ ] NA

DEQ approval date:

(A) PLANT OPERATION AND MAINTENANCE

1. Class and number of licensed operators: **Two Class I and one Class III**
2. Hours per day plant is manned: **1 to 2**
3. Describe adequacy of staffing. [ ] Good [**X**] Average [ ] Poor
4. Does the plant have an established program for training personnel? [**X**]Yes [ ] No
5. Describe the adequacy of the training program. [ ] Good [**X**] Average [ ] Poor
6. Are preventive maintenance tasks scheduled? [**X**]Yes [ ]No
7. Describe the adequacy of maintenance. [**X**] Good [ ] Average [ ] Poor*
8. Does the plant experience any organic/hydraulic overloading? [ ] Yes [**X**] No
   If yes, identify cause and impact on plant:
9. Any bypassing since last inspection? [ ] Yes [**X**] No
10. Is the standby electric generator operational? [ ] Yes [ ] No* [**X**] NA
11. Is the STP alarm system operational? [**X**] Yes [ ] No* [ ] NA
12. How often is the standby generator exercised? **N/A**
    Power Transfer Switch? **N/A** Alarm System? **Yearly**
13. When was the cross connection control device last tested on the potable water service? **N/A**
14. Is sludge being disposed in accordance with the approved sludge disposal plan?
    [**X**] Yes [ ] No [ ] NA
15. Is septage received by the facility? [ ] Yes [**X**] No
    Is septage loading controlled? [ ] Yes [ ] No
    Are records maintained? [ ] Yes [ ] No
16. Overall appearance of facility: [**X**] Good [ ] Average [ ] Poor

Comments:

1) Licensed operators from Dabney & Crooks operate the plant.
6) Basic PM performed monthly by Class III operator, who also has mechanic certification.
14) Septic tanks are pumped out and cleaned once per year prior to school year.

(B) PLANT RECORDS

1. Which of the following records does the plant maintain?

Operational Logs for each unit process	[**X**] Yes	[ ] No	[ ] NA
Instrument maintenance and calibration	[**X**] Yes	[ ] No	[ ] NA
Mechanical equipment maintenance	[**X**] Yes	[ ] No	[ ] NA
Industrial waste contribution (Municipal Facilities)	[ ] Yes	[ ] No	[**X**] NA

2. What does the operational log contain?

[**X**] Visual observations
[**X**] Laboratory results
[ ] Control calculations
[**X**] Flow measurement
[**X**] Process adjustments
[ ] Other (specify)

Comments:

3. What do the mechanical equipment records contain?

[ ] As built plans and specs
[**X**] Manufacturers instructions
[**X**] Lubrication schedules
[ ] Spare parts inventory
[ ] Equipment/parts suppliers
[ ] Other (specify)

Comments:

4. What do the industrial waste contribution records contain? **N/A** (Municipal Only)

[ ] Waste characteristics
[ ] Impact on plant
[ ] Locations and discharge types
[ ] Other (specify)

Comments:

5. Which of the following records are kept at the plant and available to personnel?

[**X**] Equipment maintenance records
[ ] Industrial contributor records
[**X**] Sampling and testing records
[**X**] Operational Log
[**X**] Instrumentation records

6. Records not normally available to plant personnel and their location: **Maintenance and contract laboratory results are stored at the superintendent' office.**

7. Were the records reviewed during the inspection? [**X**] Yes [ ] No

8. Are the records adequate and the O & M Manual current? [**X**] Yes [ ] No

9. Are the records maintained for the required 3-year time period? [**X**] Yes [ ] No

Comments:

(C) SAMPLING

1. Do sampling locations appear to be capable of providing representative samples? [**X**] Yes [ ] No*
2. Do sample types correspond to those required by the VPDES permit? [**X**] Yes [ ] No*
3. Do sampling frequencies correspond to those required by the VPDES permit? [**X**] Yes [ ] No*
4. Are composite samples collected in proportion to flow? [ ] Yes [ ] No* [**X**] NA
5. Are composite samples refrigerated during collection? [ ] Yes [ ] No* [**X**] NA
6. Does plant maintain required records of sampling? [**X**] Yes [ ] No*
7. Does plant run operational control tests? [**X**] Yes [ ] No

Comments:

(D) TESTING

1. Who performs the testing? [**X**] Plant [ ] Central Lab [**X**] Commercial Lab

Name: **G. W. Clifford & Associates (TKN and E. Coli); Dabney & Crooks**

If plant performs any testing, complete 2-4.

2. What method is used for chlorine analysis? **DPD Hach Pocket Colorimeter**
3. Does plant appear to have sufficient equipment to perform required tests? [**X**] Yes [ ] No*
4. Does testing equipment appear to be clean and/or operable? [**X**] Yes [ ] No*

Comments:

(E) FOR INDUSTRIAL FACILITIES WITH TECHNOLOGY BASED LIMITS ONLY

1. Is the production process as described in the permit application? (If no, describe changes in comments)
   [ ] Yes [ ] No [**X**] NA
2. Do products and production rates correspond as provided in the permit application? (If no, list differences)
   [ ] Yes [ ] No [**X**] NA
3. Has the State been notified of the changes and their impact on plant effluent? Date:
   [ ] Yes [ ] No* [**X**] NA

Comments:

Problems identified during March 1998 inspection:	Corrected	Not Corrected
1. Updated, approvable O&M manual to be submitted	[**X**]	[ ]
2. Sand beds needed raked smooth and level	**Not applicable**	
3. PVC piping for sand bed distribution arm was not level	**Not applicable**	
4. Safety measures for confined space not followed for chlorination and dechlorination chambers	[**X**]	[ ]
5.	[ ]	[ ]
6.	[ ]	[ ]
7.	[ ]	[ ]
8.	[ ]	[ ]
9.	[ ]	[ ]
10.	[ ]	[ ]

SUMMARY for Current Inspection

Comments:

- **Facility was well maintained and operated.**
- **Operators stated plant operation is occasionally affected by high ammonia in the influent.**
- **A second package plant was added to accommodate the new middle school. The second plant is currently being phased into operation.**

Recommendations for action:

- **Orange County School Board should evaluate cleaning products used by janitorial staff to minimize ammonia in the influent.**
- **The gravel access road to the treatment plant should be repaired to allow safe access at all times.**

UNIT PROCESS: Septic Tank/Dosing Siphon/Sand Filter

1. Grease trap preceding septic tank:	[**X**] Yes	[ ] No	[ ] NA
2. When was septic tank last pumped?	**August 2004**		
3. Dosing siphon operational (doesn't trickle):	[ ] Yes	[ ] No	[**X**] NA
4. Condition of dosing siphon:	[ ] Good	[ ] Fair	[ ] Poor*
5. Number of sand filters:	**0**		
6. Condition of distribution system including seals:	[ ] Good	[ ] Fair	[ ] Poor*
7. Following problems evident:			
a. grass on filter	[ ] Yes*	[ ] No	
b. ponding	[ ] Yes*	[ ] No	
c. uneven sand	[ ] Yes*	[ ] No	
d. places of black or septic sand	[ ] Yes*	[ ] No	
e. uneven distribution of influent	[ ] Yes*	[ ] No	
f. solids on surface	[ ] Yes*	[ ] No	
8. Wasted sand disposed of properly?	[ ] Yes	[ ] No*	

Comments:

- **A 1300 gallon grease trap precedes two septic tanks (8,000 and 5,000 gallons) which operate in series.**
- **Since the last inspection, the sand filters have been replaced with an activated sludge system.**

UNIT PROCESS: Screening/Comminution

1.	Number of Units:	Manual:	**1**	Mechanical:	
	Number in operation:	Manual:	**1**	Mechanical:	
2.	Bypass channel provided:		[ ] Yes	[**X**] No*	
	Bypass channel in use:		[ ] Yes	[ ] No	
3.	Area adequately ventilated:		[**X**] Yes	[ ] No*	
4.	Alarm system for equipment failure or overloads:		[ ] Yes	[**X**] No*	
5.	Proper flow distribution between units:		[ ] Yes	[ ] No	[**X**] NA
6.	How often are units checked and cleaned?		**Daily**		
7.	Cycle of operation:	**Continuous**			
8.	Volume of screenings removed:	**Minor quantities**			
9.	General condition:	[**X**] Good	[ ] Fair	[ ] Poor	

Comments: **The bar screen is prior to the activated sludge process but after the septic tank. Grit and non-organics would be collected by the septic tanks.**

UNIT PROCESS: Activated Sludge Aeration

1. Number of units: **1** In operation: **1**
2. Mode of operation: **Extended aeration**
3. Proper flow distribution between units: [ ] Yes [ ] No* [**X**] NA
4. Foam control operational: [ ] Yes [ ] No* [**X**] NA
5. Scum control operational: [ ] Yes [ ] No* [**X**] NA
6. Evidence of following problems:
   - a. dead spots [ ] Yes* [**X**] No
   - b. excessive foam [ ] Yes* [**X**] No
   - c. poor aeration [ ] Yes* [**X**] No
   - d. excessive aeration [ ] Yes* [**X**] No
   - e. excessive scum [ ] Yes* [**X**] No
   - f. aeration equipment malfunction [ ] Yes* [**X**] No
   - g. other (identify in comments) [ ] Yes* [**X**] No
7. Mixed liquor characteristics (as available):

pH:	**6.5 - 7.2**	s.u.
MLSS:	**2500 – 4200**	mg/L
DO:	**1.5 – 4.0**	mg/l
Color:	**Chocolate brown**	
Odor:	**None**	
Settleability:	**300 - 400**	ml/L
Others (identify):		

8. Return/waste sludge:
   A. Return Rate: **1 gpm** b. Waste Rate: **100 gal** c. Frequency of Wasting: **1 or 2 weekly**
9. Aeration system control: [**X**] Time Clock [ ] Manual [ ] Continuous [ ] Other (explain)
10. Effluent control devices working properly (oxidation ditches): [ ] Yes [ ] No* [**X**] NA
11. General condition: [**X**] Good [ ] Fair [ ] Poor

Comments:

- **The same sludge pumps are used for RAS or WAS depending on common valve setting.**
- **Soda ash can be added to the aeration basin for pH control and to maintain nitrification.**

5) Foam and scum are hosed down if required.

UNIT PROCESS: Sedimentation

[ ] Primary [**X**] Secondary [ ] Tertiary

1.	Number of units: **1**	In operation: **1**		
2.	Proper flow distribution between units:	[ ] Yes	[ ] No*	[**X**] NA
3.	Signs of short circuiting and/or overloads:	[ ] Yes	[**X**] No	
4.	Effluent weirs level: Clean:	[**X**] Yes [**X**] Yes	[ ] No* [ ] No*	
5.	Scum collection system working properly:	[**X**] Yes	[ ] No*	[ ] NA
6.	Sludge collection system working properly:	[**X**] Yes	[ ] No*	
7.	Influent, effluent baffle systems working properly:	[**X**] Yes	[ ] No*	
8.	Chemical addition: Chemicals:	[ ] Yes	[**X**] No	
9.	Effluent characteristics: **Clear**			
10.	General condition:	[**X**] Good	[ ] Fair	[ ] Poor

Comments: **A common valve is used to divert RAS to WAS line.**

UNIT PROCESS: Aerobic Digestion

1. Number of units: **1** In operation: **1**

2. Type of sludge treated [ ] Primary [**X**] WAS [ ] Other

3. Frequency of sludge application to digestors: **Once or twice per week**

4. Supernatant return rate: **Not measured**

5. pH adjustment provided: [ ] Yes [**X**] No
   Utilized: [ ] Yes [ ] No [**X**] NA

6. Tank contents well-mixed and relatively free of odors: [**X**] Yes [ ] No*

7. If diffused aeration is used, do diffusers require frequent cleaning?
   [ ] Yes [**X**] No [ ] NA

8. Location of supernatant return: [ ] Head [ ] Primary [**X**] Other: **Aeration tank**

9. Process control testing:

   a. reduction of volatile solids [ ] Yes [**X**] No
   b. pH [ ] Yes [**X**] No
   c. alkalinity [ ] Yes [**X**] No
   d. dissolved oxygen [ ] Yes [**X**] No

10. Foaming problem present: [ ] Yes* [**X**] No

11. Signs of short-circuiting or overloads: [ ] Yes* [**X**] No

12. General condition: [**X**] Good [ ] Fair [ ] Poor

Comments:

UNIT PROCESS: Chlorination

1. No. of chlorinators: **1** In operation: **1**
2. No. of evaporators: **0** In operation: **0**
3. No. of chlorine contact tanks: **1** In operation: **1**
4. Proper flow distribution between units: [ ] Yes [ ] No* [**X**] NA
5. How is chlorine introduced into the wastewater?
   [ ] Perforated diffusers
   [ ] Injector with single entry point
   [**X**] Other: **Tablet feeder**
6. Chlorine residual in basin effluent: **>2 mg/L**
7. Applied chlorine dosage: **Unknown**
8. Contact basins adequately baffled: [**X**] Yes [ ] No*
9. Adequate ventilation:
   a. cylinder storage area [ ] Yes [ ] No* [**X**] NA
   b. equipment room [ ] Yes [ ] No* [**X**] NA
10. Proper safety precautions used: [**X**] Yes [ ] No*
11. General condition: [**X**] Good [ ] Fair [ ] Poor

Comments:

6) The system had not discharged yet during the day so chlorinated effluent sample was not representative.

10) Operators reload tablets by reaching down into manhole, which leads to tablets missing the dosing tubes.

UNIT PROCESS: Dechlorination

1. Chemical used: [ ] Sulfur Dioxide [**X**] Bisulfite [ ] Other
2. No. of sulfonators: **0** In operation: **0**
3. No. of evaporators: **0** In operation: **0**
4. No. of chemical feeders: **1** In operation: **1**
5. No. of contact tanks: **1** In operation: **1**
6. Proper flow distribution between units: [ ] Yes [ ] No* [**X**] NA
7. How is chemical introduced into the wastewater?
   [ ] Perforated diffusers
   [ ] Injector with single entry point?
   [**X**] Other: **Tablet Feeder**
8. Control system operational: [ ] Yes [ ] No* [**X**] NA
   a. residual analyzers: [ ] Yes [ ] No* [**X**] NA
   b. system adjusted: [ ] Automatic [**X**] Manual [ ] Other:
9. Applied dechlorination dose: **Unknown**
10. Chlorine residual in basin effluent: **0.01 mg/L (< QL)**
11. Contact basins adequately baffled: [**X**] Yes [ ] No* [ ] NA
12. Adequate ventilation:
    a. cylinder storage area: [ ] Yes [ ] No* [**X**] NA
    b. equipment room: [ ] Yes [ ] No* [**X**] NA
13. Proper safety precautions used: [**X**] Yes [ ] No*
14. General condition: [**X**] Good [ ] Fair [ ] Poor

Comments:

UNIT PROCESS: Post Aeration

1. Number of units: **1** In operation: **1**

2. Proper flow distribution between units: [ ] Yes [ ] No* [**X**] NA

3. Evidence of following problems:
   a. dead spots [ ] Yes* [**X**] No
   b. excessive foam [ ] Yes* [**X**] No
   c. poor aeration [ ] Yes* [**X**] No
   d. mechanical equipment failure [ ] Yes* [ ] No [**X**] NA

4. How is the aerator controlled? [ ] Time clock [ ] Manual [**X**] Continuous [ ] Other* [ ] NA

5. What is the current operating schedule? **Continuous discharge**

6. Step weirs level: [**X**] Yes [ ] No [ ] NA

7. Effluent D.O. level: **No discharge**

8. General condition: [**X**] Good [ ] Fair [ ] Poor

Comments: **This unit is a wooden step cascade aerator with 5 steps.**

UNIT PROCESS: Effluent/Plant Outfall

1. Type Outfall [**X**] Shore based [ ] Submerged
2. Type if shore based: [ ] Wingwall [ ] Headwall [**X**] Rip Rap
3. Flapper valve: [ ] Yes [ ] No [**X**] NA
4. Erosion of bank: [ ] Yes [**X**] No [ ]NA
5. Effluent plume visible? [ ] Yes* [**X**]No
6. Condition of outfall and supporting structures: [**X**] Good [ ] Fair [ ] Poor*
7. Final effluent, evidence of following problems:
   a. oil sheen [ ] Yes* [**X**] No
   b. grease [ ] Yes* [**X**] No
   c. sludge bar [ ] Yes* [**X**] No
   d. turbid effluent [ ] Yes* [**X**] No
   e. visible foam [ ] Yes* [**X**] No
   f. unusual color [ ] Yes* [**X**] No

Comments:

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
LABORATORY INSPECTION REPORT

10/01

FACILITY NO: VA0078131	INSPECTION DATE: April 20, 2005	PREVIOUS INSP. DATE: March 11, 1998	PREVIOUS EVALUATION: No Deficiencies	TIME SPENT: 1 hr

NAME/ADDRESS OF FACILITY:	FACILITY CLASS:	FACILITY TYPE:	UNANNOUNCED INSPECTION?
Locust Grove Elementary 31230 Constitution Highway Locust Grove, VA	( ) MAJOR ( ) MINOR (X) SMALL ( ) VPA/NDC	(X) MUNICIPAL ( ) INDUSTRIAL ( ) FEDERAL ( ) COMMERCIAL LAB	( ) YES (X) NO **FY-SCHEDULED INSPECTION?** (X) YES ( ) NO

INSPECTOR(S):	REVIEWERS:	PRESENT AT INSPECTION:
Terry Nelson		Robert Barham (Dabney and Crooks)

LABORATORY EVALUATION	DEFICIENCIES? Yes	No
LABORATORY RECORDS		X
GENERAL SAMPLING & ANALYSIS		X
LABORATORY EQUIPMENT		X
DISSOLVED OXYGEN ANALYSIS PROCEDURES		X
pH ANALYSIS PROCEDURES		X
TOTAL RESIDUAL CHLORINE ANALYSIS PROCEDURES		X

QUALITY ASSURANCE/QUALITY CONTROL

Y/N	QUALITY ASSURANCE METHOD	PARAMETERS	FREQUENCY
N	REPLICATE SAMPLES		
N	SPIKED SAMPLES		
N	STANDARD SAMPLES		
N	SPLIT SAMPLES		
N	SAMPLE BLANKS		
N	OTHER		
N	EPA-DMR QA DATA?	RATING: ( ) No Deficiency ( ) Deficiency ( ) NA	
N	QC SAMPLES PROVIDED?	RATING: ( ) No Deficiency ( ) Deficiency ( ) NA	

FACILITY #: **VA0078131**

LABORATORY RECORDS SECTION

LABORATORY RECORDS INCLUDE THE FOLLOWING:

X	SAMPLING DATE	X	ANALYSIS DATE		CONT MONITORING CHART
X	SAMPLING TIME	X	ANALYSIS TIME	X	INSTRUMENT CALIBRATION
X	SAMPLE LOCATION	X	TEST METHOD	X	INSTRUMENT MAINTENANCE
				X	CERTIFICATE OF ANALYSIS

WRITTEN INSTRUCTIONS INCLUDE THE FOLLOWING:

X	SAMPLING SCHEDULES	X	CALCULATIONS	X	ANALYSIS PROCEDURES

	YES	NO	N/A
DO ALL ANALYSTS INITIAL THEIR WORK?	X		
DO BENCH SHEETS INCLUDE ALL INFORMATION NECESSARY TO DETERMINE RESULTS?	X		
IS THE DMR COMPLETE AND CORRECT? MONTH(S) REVIEWED:	X		
ARE ALL MONITORING VALUES REQUIRED BY THE PERMIT REPORTED?	X		

GENERAL SAMPLING AND ANALYSIS SECTION

	YES	NO	N/A
ARE SAMPLE LOCATION(S) ACCORDING TO PERMIT REQUIREMENTS?	X		
ARE SAMPLE COLLECTION PROCEDURES APPROPRIATE?	X		
IS SAMPLE EQUIPMENT CONDITION ADEQUATE?	X		
IS FLOW MEASUREMENT ACCORDING TO PERMIT REQUIREMENTS?	X		
ARE COMPOSITE SAMPLES REPRESENTATIVE OF FLOW?			X
ARE SAMPLE HOLDING TIMES AND PRESERVATION ADEQUATE?	X		
IF ANALYSIS IS PERFORMED AT ANOTHER LOCATION, ARE SHIPPING PROCEDURES ADEQUATE? LIST PARAMETERS AND NAME & ADDRESS OF LAB: **Dabney & Crooks, Fredericksburg VA: $CBOD_5$ and TSS** **G. W. Clifford & Associates, Fredericksburg, VA : TKN and E. Coli**	X		

LABORATORY EQUIPMENT SECTION

	YES	NO	N/A
IS LABORATORY EQUIPMENT IN PROPER OPERATING RANGE?	X		
ARE ANNUAL THERMOMETER CALIBRATION(S) ADEQUATE?	X		
IS THE LABORATORY GRADE WATER SUPPLY ADEQUATE?	X		
ARE ANALYTICAL BALANCE(S) ADEQUATE?			X

LABORATORY INSPECTION REPORT SUMMARY

FACILITY NAME: Locust Grove Elementary	FACILITY NO: VA0078131	INSPECTION DATE: April 31, 2005
( ) Deficiencies	(X) No Deficiencies	

LABORATORY RECORDS

The Laboratory Records section had **No Deficiencies.**

GENERAL SAMPLING AND ANALYSIS

The General Sampling and Analysis section had **No Deficiencies.**

LABORATORY EQUIPMENT

The Laboratory Equipment section had **No Deficiencies.**

INDIVIDUAL PARAMETERS

pH

The analysis for the parameter of pH had **No Deficiencies.**

Dissolved Oxygen (DO)

The analysis for the parameter of Dissolved Oxygen had **No Deficiencies.**

Total Residual Chlorine (TRC)

The analysis for the parameter of Total Residual Chlorine had **No Deficiencies.**

ANALYST:	**Robert Barham**	VPDES NO.	**VA0078131**

Parameter: Dissolved Oxygen
Method: Electrode
03/01

METHOD OF ANALYSIS:

X	18th EDITION OF STANDARD METHODS-4500-O G
	ASTM-D-888-92(B)
	EPA METHODS FOR CHEMICAL ANALYSIS-360.1
	USGS-METHODS IN WATER AND FLUVIAL SEDIMENTS-I-1576-78

		Y	N
1)	If samples are collected, is collection carried out with a minimum of turbulence and air bubble formation? [SM4500-O B.3; 360.1-3.1]	**In-situ**	
2)	If samples are collected, is the sample bottle allowed to overflow several times its volume? [SM4500-O B.3; 360.1-3.1]	**In-situ**	
3)	Are meter and electrode operable and providing consistent readings? [Permit]	**X**	
4)	Is membrane in good condition without trapped air bubbles? [SM 4500-O G.3.b]	**X**	
5)	Is correct filling solution used in electrode? [Mfr.]	**X**	
6)	Is meter calibrated before use or at least daily? [Mfr.]	**X**	
7)	Is calibration procedure performed according to manufacturer's instructions? [Mfr.]	**X**	
8)	Are water droplets shaken off the membrane prior to calibration? [Mfr.]	**X**	
9)	Is sample stirred during analysis? [Mfr.]	**In-Situ**	
10)	Is the sample analysis procedure performed according to manufacturer's instructions? [Mfr.]	**X**	
11)	Is meter stabilized before reading D.O.? [Mfr.]	**X**	
12)	Is electrode stored according to manufacturer's instructions? [Mfr.]	**X**	

COMMENTS:	**The sample is read in-situ below the last step of the cascade aerator. DO meter thermistor was checked on 04/12/05 and no correction was required.**
PROBLEMS:	**None**

ANALYST:	**Robert Barham**	VPDES NO	**VA0078131**

Parameter: Total Residual Chlorine
Method: DPD Colorimetric (HACH Pocket Colorimeter™)
04/02

METHOD OF ANALYSIS:

X	MANUFACTURER'S INSTRUCTIONS (HACH METHOD 8167)

		Y	N
1)	Are the DPD PermaChem® Powder Pillows stored in a cool, dry place? [Mfr.]	X	
2)	Are the pillows within the manufacturer's expiration date? [Permit]	X	
3)	Has buffering capability of DPD pillows been checked annually? (Pillows should adjust sample pH to between 6 and 7) [Permit]	X	
4)	When pH adjustment is required, is H_2SO_4 or NaOH used? [11.3.1]	X	
5)	Are cells clean and in good condition? [Permit]	X	
6)	Is the low range (0.01-mg/L resolution) used for samples containing residuals from 0-2.00 mg/L? [Mfr.]	X	
7)	Is the 10-mL cell (2.5-cm diameter) used for samples from 0-2.00 mg/L? [Mfr.]	X	
8)	Is the meter zeroed correctly by using sample as blank for the cell used? [Mfr.]	X	
9)	Is the instrument cap placed correctly on the meter body when the meter is zeroed and when the sample is analyzed? [Mfr.]	X	
10)	Is the DPD Total Chlorine PermaChem® Powder Pillow mixed into the sample? [11.1]	X	
11)	Is the analysis made at least three minutes but not more than six minutes after PermaChem® Powder Pillow addition? [11.2]	X	
12)	If read-out is flashing [2.20], is sample diluted correctly, then reanalyzed? [1.2 & 2.0]	X	
13)	When instrument was new to lab, was instrument calibration verified by analyzing a Quality Control Sample (i.e. Spec-check™, alternate source standard) prior to any data being reported? [Permit]	X	
14)	Is a Quality Control Sample (i.e. Spec- check™, alternate source standard) analyzed quarterly? [9.2.3]	X	

COMMENTS:	**None**
PROBLEMS:	**None**

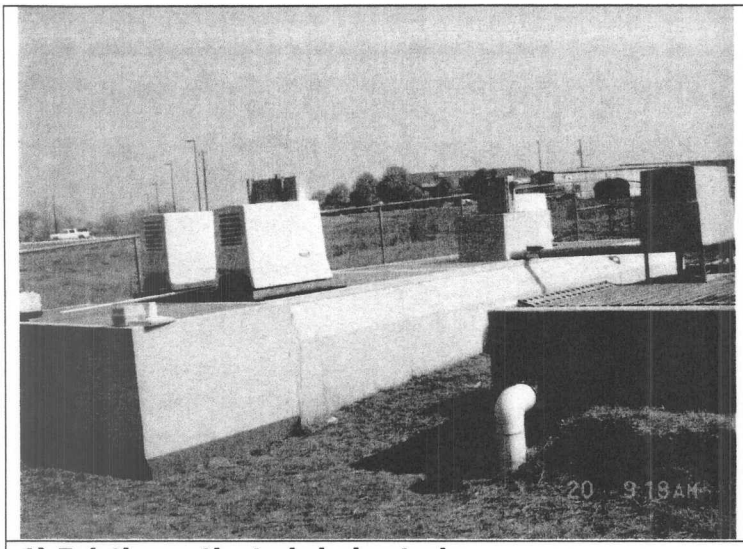
ANALYST:	**Robert Barham**	VPDES NO	**VA0078131**

Parameter: Hydrogen Ion (pH)
Method: Electrometric
09/01

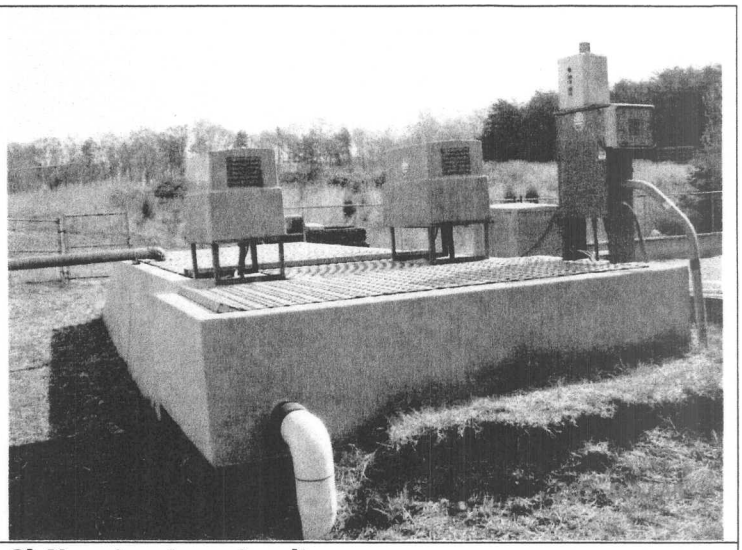
X	18th EDITION STANDARD METHODS-4500-H-B
	EPA METHODS FOR CHEMICAL ANALYSIS-150.1
	ASTM-D1293-84(90)(A or B)
	USGS-METHODS IN WATER AND FLUVIAL SEDIMENTS-I-1586-85

		Y	N
1)	Is the electrode in good condition (no chloride precipitate, etc.)? [SM-2.b/c and 5.b; 150.1-4.3/Permit]	X	
2)	Is electrode storage solution in accordance with manufacturer's instructions? [Mfr.]	X	
3)	Is meter calibrated on at least a daily basis? [SM-4.a; 150.1-8.1]	X	
4)	Are two buffers which bracket the anticipated range of the sample used to calibrate the meter? (For meters not capable of performing a two point calibration is a second buffer which brackets the sample pH analyzed and found to be within ±0.1 SU of the expected value? [SM-2.a; 150.1-7.2]	X	
5)	Is meter calibration documented? [Permit]	X	
6)	Does meter read within 0.1 unit for the pH of the second buffer solution? [SM-4.a/5.b; 150.1-7.2.1]	X	
7)	After calibration, is a buffer of 7 SU analyzed as a check sample to verify that calibration is correct? Agreement should by within ∀ 0.1 SU. [Permit]	X	
8)	Do the buffer solutions appear to be free of contamination or growths? [SM-3.a; Permit]	X	
9)	Are buffer solutions within their listed shelf life or have they been prepared within the last 4 weeks? [SM-3.a; 150.1-6.1.1]	X	
10)	Is the cap or sleeve covering the access hole on the reference electrode removed when measuring pH? [Mfr.]	N/A	
11)	Is the temperature of buffer solutions and samples measured prior to testing (disregard if ATC is used)? [SM-4.a; 150.1-4.4/8.3]	ATC	
12)	Was the meter adequately adjusted for temperature (disregard if ATC is used)? [SM-4.a;150.1-8.3]	ATC	
13)	Was the electrode rinsed between solutions? [SM-4.a; 150.1-8.4]	X	
14)	Was the electrode blotted dry between solutions (disregard if rinse is next solution)? [SM-4.a; 150.1-8.4]	X	
15)	Is the sample stirred gently at a constant speed during measurement? [SM-4.b; 150.1-8.4]	X	
16)	Does the meter hold a steady reading after reaching equilibrium? [SM-4.b/5 ;150.1-8.4]	X	

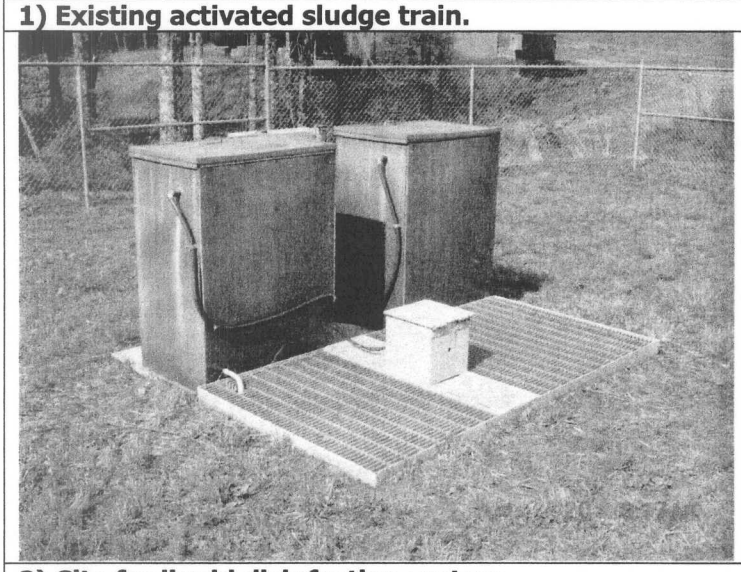
COMMENTS:	**Using a LaMotte pH meter which is calibrated with 4, 7, and 10 buffers. pH meter thermistor was checked on 04/12/05 and a -0.1 °C correction was noted.**
PROBLEMS:	**None**



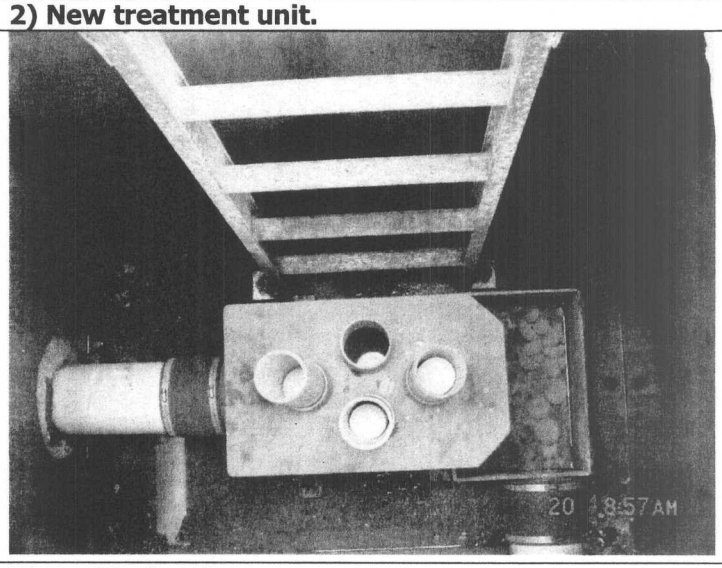
1) Existing activated sludge train.



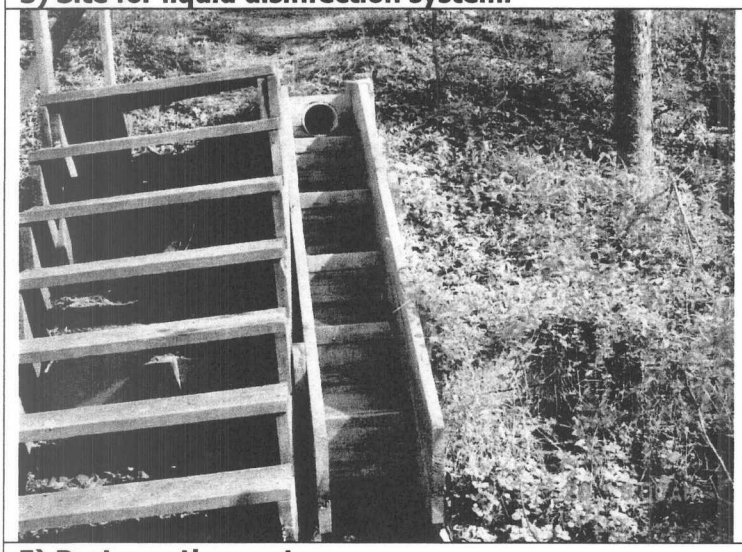
2) New treatment unit.



3) Site for liquid disinfection system.



4) Dechlorination system.



5) Post aeration system.

Facility name: Locust Grove Elementary
Site Inspection Date: April 20, 2005

VPDES Permit No. VA0078131
Photos & Layout by: Terry Nelson

To: Katie Conaway
From: Joan C. Crowther

Date: May 15, 2008
Subject: Planning Statement for Locust Grove Elementary School
Permit No: VA0078131

Discharge Type: Municipal
Discharge Flow: 0.014 MGD

Receiving Stream: Cormack Run, UT
Latitude / Longitude: 38°17'45"/ 77°49'53"
Waterbody ID: E17R, RA41

1. Is there monitoring data for the receiving stream?
   - If yes, please attach latest summary.
   - If no, where is the nearest downstream monitoring station.

There are no monitoring data for the receiving stream (UT to Cormack Run). The nearest downstream monitoring station is a DEQ ambient water quality monitoring station (3-MIR004.05) located on Mine Run, approximately 7.37 miles downstream from VA0078131. Cormack Run is a tributary to Mine Run.

2. Is the receiving stream on the current 303(d) list?

The receiving stream, UT to Cormack Run, is not on the current 303(d) list.

- If yes, what is the impairment?

  NA

- Has the TMDL been prepared?

  NA

- If yes, what is the WLA for the discharge?

  NA

- If no, what is the schedule for the TMDL?

  NA

3. If the answer to (2) above is no, is there a downstream 303(d) listed impairment?

Yes.

- If yes, what is the impairment?

  UT to Cormack Run discharges into Cormack Run, which in turn discharges into Mine Run. Mine Run at segment VAN-E17R_MIR01A00 is listed as impaired for *E. coli* bacteria. According to the 2006 Integrated Assessment, monitoring data at DEQ ambient water quality station 3-MIR004.05 at Route 611 showed that 7 of 13 samples (53.8%) exceeded the single sample maximum criterion for *E. coli,* resulting in an impaired classification for the recreation use. See Map 1 for the location of the impaired segment.

- Has a TMDL been prepared?

  A bacteria TMDL for the Mine Run watershed was submitted to EPA and approved November 15, 2005. The sources of bacteria requiring reductions are pet, livestock and wildlife waste delivered directly to the stream or via pastureland or forest, human contributions from straight pipes and failing septic systems, and biosolid application.

  A modification to the Mine Run TMDL was approved by EPA on April 28, 2008. The purpose of the modification was to include a WLA for Locust Grove Elementary School, which was inadvertently omitted from the original TMDL, and to include an allocation for future growth of point sources in the watershed.

- Will the TMDL include the receiving stream?

  The TMDL did not specifically include the receiving stream (UT to Cormack Run), however, all upstream facilities were included during WLA consideration.

- Is there a WLA for the discharge?

  The facility was given a WLA for *E. coli* (**2.44E+10 cfu/year**) in the TMDL modification that was approved by EPA on 4/28/2008.

- What is the schedule for the TMDL?

  TMDL already completed.

** Additional information on further downstream impairments:

- Rapidan River (VAN-E18R_RAP03A02) is listed as impaired for *E. coli* bacteria. TMDL Approved 12/5/2007.

- Rappahannock River (VAN-E20E_RPP03A02, VAN-E20E_RPP02A02, VAN-E20E_RPP01A02, VAN-E21E_RPP05A02, VAN-E21E_RPP04A02, VAN-E21E_RPP03A02, VAN-E21E_RPP01A02) is listed as impaired for *E. coli* (TMDL submitted to EPA March 2008) and for PCBs in Fish Tissue (TMDL Due Date – 2016).

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

   There are no additional conditions that are requested at this time.

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Locust Grove Elementary School Permit No.: VA0078131

Receiving Stream: Cormack Run, UT Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information		Effluent Information	
Mean Hardness (as CaCO3) =	mg/L	1Q10 (Annual) =	0 MGD	Annual - 1Q10 Mix =	100 %	Mean Hardness (as CaCO3) =	88.6 mg/L
90% Temperature (Annual) =	deg C	7Q10 (Annual) =	0 MGD	- 7Q10 Mix =	100 %	90% Temp (Annual) =	25 deg C
90% Temperature (Wet season) =	deg C	30Q10 (Annual) =	0 MGD	- 30Q10 Mix =	100 %	90% Temp (Wet season) =	deg C
90% Maximum pH =	SU	1Q10 (Wet season) =	0 MGD	Wet Season - 1Q10 Mix =	100 %	90% Maximum pH =	7.7 SU
10% Maximum pH =	SU	30Q10 (Wet season)	0 MGD	- 30Q10 Mix =	100 %	10% Maximum pH =	SU
Tier Designation (1 or 2) =	1	30Q5 =	0 MGD			Discharge Flow =	0.014 MGD
Public Water Supply (PWS) Y/N? =	n	Harmonic Mean =	0 MGD				
Trout Present Y/N? =	n	Annual Average =	0 MGD				
Early Life Stages Present Y/N? =	y						

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Acenapthene	0	--	--	na	2.7E+03	--	--	na	2.7E+03	--	--	--	--	--	--	--	--	--	--	na	**2.7E+03**
Acrolein	0	--	--	na	7.8E+02	--	--	na	7.8E+02	--	--	--	--	--	--	--	--	--	--	na	**7.8E+02**
Acrylonitrile[C]	0	--	--	na	6.6E+00	--	--	na	6.6E+00	--	--	--	--	--	--	--	--	--	--	na	**6.6E+00**
Aldrin [C]	0	3.0E+00	--	na	1.4E-03	3.0E+00	--	na	1.4E-03	--	--	--	--	--	--	--	--	**3.0E+00**	--	na	**1.4E-03**
Ammonia-N (mg/l) (Yearly)	0	1.44E+01	1.82E+00	na	--	1.4E+01	1.8E+00	na	--	--	--	--	--	--	--	--	--	**1.4E+01**	**1.8E+00**	na	--
Ammonia-N (mg/l) (High Flow)	0	1.44E+01	3.58E+00	na	--	1.4E+01	3.6E+00	na	--	--	--	--	--	--	--	--	--	**1.4E+01**	**3.6E+00**	na	--
Anthracene	0	--	--	na	1.1E+05	--	--	na	1.1E+05	--	--	--	--	--	--	--	--	--	--	na	**1.1E+05**
Antimony	0	--	--	na	4.3E+03	--	--	na	4.3E+03	--	--	--	--	--	--	--	--	--	--	na	**4.3E+03**
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	**3.4E+02**	**1.5E+02**	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene [C]	0	--	--	na	7.1E+02	--	--	na	7.1E+02	--	--	--	--	--	--	--	--	--	--	na	**7.1E+02**
Benzidine[C]	0	--	--	na	5.4E-03	--	--	na	5.4E-03	--	--	--	--	--	--	--	--	--	--	na	**5.4E-03**
Benzo (a) anthracene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	**4.9E-01**
Benzo (b) fluoranthene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	**4.9E-01**
Benzo (k) fluoranthene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	**4.9E-01**
Benzo (a) pyrene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	**4.9E-01**
Bis2-Chloroethyl Ether	0	--	--	na	1.4E+01	--	--	na	1.4E+01	--	--	--	--	--	--	--	--	--	--	na	**1.4E+01**
Bis2-Chloroisopropyl Ether	0	--	--	na	1.7E+05	--	--	na	1.7E+05	--	--	--	--	--	--	--	--	--	--	na	**1.7E+05**
Bromoform [C]	0	--	--	na	3.6E+03	--	--	na	3.6E+03	--	--	--	--	--	--	--	--	--	--	na	**3.6E+03**
Butylbenzylphthalate	0	--	--	na	5.2E+03	--	--	na	5.2E+03	--	--	--	--	--	--	--	--	--	--	na	**5.2E+03**
Cadmium	0	3.4E+00	1.0E+00	na	--	3.4E+00	1.0E+00	na	--	--	--	--	--	--	--	--	--	**3.4E+00**	**1.0E+00**	na	--
Carbon Tetrachloride [C]	0	--	--	na	4.4E+01	--	--	na	4.4E+01	--	--	--	--	--	--	--	--	--	--	na	**4.4E+01**
Chlordane [C]	0	2.4E+00	4.3E-03	na	2.2E-02	2.4E+00	4.3E-03	na	2.2E-02	--	--	--	--	--	--	--	--	**2.4E+00**	**4.3E-03**	na	**2.2E-02**
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	**8.6E+05**	**2.3E+05**	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	**1.9E+01**	**1.1E+01**	na	--
Chlorobenzene	0	--	--	na	2.1E+04	--	--	na	2.1E+04	--	--	--	--	--	--	--	--	--	--	na	**2.1E+04**

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Chlorodibromomethane[C]	0	--	--	na	3.4E+02	--	--	na	3.4E+02	--	--	--	--	--	--	--	--	--	--	na	**3.4E+02**
Chloroform [C]	0	--	--	na	2.9E+04	--	--	na	2.9E+04	--	--	--	--	--	--	--	--	--	--	na	**2.9E+04**
2-Chloronaphthalene	0	--	--	na	4.3E+03	--	--	na	4.3E+03	--	--	--	--	--	--	--	--	--	--	na	**4.3E+03**
2-Chlorophenol	0	--	--	na	4.0E+02	--	--	na	4.0E+02	--	--	--	--	--	--	--	--	--	--	na	**4.0E+02**
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	**8.3E-02**	**4.1E-02**	na	**--**
Chromium III	0	5.2E+02	6.7E+01	na	--	5.2E+02	6.7E+01	na	--	--	--	--	--	--	--	--	--	**5.2E+02**	**6.7E+01**	na	**--**
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	**1.6E+01**	**1.1E+01**	na	**--**
Chromium, Total	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	**--**
Chrysene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	**4.9E-01**
Copper	0	1.2E+01	8.1E+00	na	--	1.2E+01	8.1E+00	na	--	--	--	--	--	--	--	--	--	**1.2E+01**	**8.1E+00**	na	**--**
Cyanide	0	2.2E+01	5.2E+00	na	2.2E+05	2.2E+01	5.2E+00	na	2.2E+05	--	--	--	--	--	--	--	--	**2.2E+01**	**5.2E+00**	na	**2.2E+05**
DDD [C]	0	--	--	na	8.4E-03	--	--	na	8.4E-03	--	--	--	--	--	--	--	--	--	--	na	**8.4E-03**
DDE [C]	0	--	--	na	5.9E-03	--	--	na	5.9E-03	--	--	--	--	--	--	--	--	--	--	na	**5.9E-03**
DDT [C]	0	1.1E+00	1.0E-03	na	5.9E-03	1.1E+00	1.0E-03	na	5.9E-03	--	--	--	--	--	--	--	--	**1.1E+00**	**1.0E-03**	na	**5.9E-03**
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	**1.0E-01**	na	**--**
Dibenz(a,h)anthracene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	**4.9E-01**
Dibutyl phthalate	0	--	--	na	1.2E+04	--	--	na	1.2E+04	--	--	--	--	--	--	--	--	--	--	na	**1.2E+04**
Dichloromethane (Methylene Chloride) [C]	0	--	--	na	1.6E+04	--	--	na	1.6E+04	--	--	--	--	--	--	--	--	--	--	na	**1.6E+04**
1,2-Dichlorobenzene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	--	--	--	--	--	--	--	--	na	**1.7E+04**
1,3-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	2.6E+03	--	--	--	--	--	--	--	--	--	--	na	**2.6E+03**
1,4-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	2.6E+03	--	--	--	--	--	--	--	--	--	--	na	**2.6E+03**
3,3-Dichlorobenzidine[C]	0	--	--	na	7.7E-01	--	--	na	7.7E-01	--	--	--	--	--	--	--	--	--	--	na	**7.7E-01**
Dichlorobromomethane [C]	0	--	--	na	4.6E+02	--	--	na	4.6E+02	--	--	--	--	--	--	--	--	--	--	na	**4.6E+02**
1,2-Dichloroethane [C]	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	**9.9E+02**
1,1-Dichloroethylene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	--	--	--	--	--	--	--	--	na	**1.7E+04**
1,2-trans-dichloroethylene	0	--	--	na	1.4E+05	--	--	na	1.4E+05	--	--	--	--	--	--	--	--	--	--	na	**1.4E+05**
2,4-Dichlorophenol	0	--	--	na	7.9E+02	--	--	na	7.9E+02	--	--	--	--	--	--	--	--	--	--	na	**7.9E+02**
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	**--**
1,2-Dichloropropane[C]	0	--	--	na	3.9E+02	--	--	na	3.9E+02	--	--	--	--	--	--	--	--	--	--	na	**3.9E+02**
1,3-Dichloropropene	0	--	--	na	1.7E+03	--	--	na	1.7E+03	--	--	--	--	--	--	--	--	--	--	na	**1.7E+03**
Dieldrin [C]	0	2.4E-01	5.6E-02	na	1.4E-03	2.4E-01	5.6E-02	na	1.4E-03	--	--	--	--	--	--	--	--	**2.4E-01**	**5.6E-02**	na	**1.4E-03**
Diethyl Phthalate	0	--	--	na	1.2E+05	--	--	na	1.2E+05	--	--	--	--	--	--	--	--	--	--	na	**1.2E+05**
Di-2-Ethylhexyl Phthalate [C]	0	--	--	na	5.9E+01	--	--	na	5.9E+01	--	--	--	--	--	--	--	--	--	--	na	**5.9E+01**
2,4-Dimethylphenol	0	--	--	na	2.3E+03	--	--	na	2.3E+03	--	--	--	--	--	--	--	--	--	--	na	**2.3E+03**
Dimethyl Phthalate	0	--	--	na	2.9E+06	--	--	na	2.9E+06	--	--	--	--	--	--	--	--	--	--	na	**2.9E+06**
Di-n-Butyl Phthalate	0	--	--	na	1.2E+04	--	--	na	1.2E+04	--	--	--	--	--	--	--	--	--	--	na	**1.2E+04**
2,4 Dinitrophenol	0	--	--	na	1.4E+04	--	--	na	1.4E+04	--	--	--	--	--	--	--	--	--	--	na	**1.4E+04**
2-Methyl-4,6-Dinitrophenol	0	--	--	na	7.65E+02	--	--	na	7.7E+02	--	--	--	--	--	--	--	--	--	--	na	**7.7E+02**
2,4-Dinitrotoluene [C]	0	--	--	na	9.1E+01	--	--	na	9.1E+01	--	--	--	--	--	--	--	--	--	--	na	**9.1E+01**
Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin) (ppq)	0	--	--	na	1.2E-06	--	--	na	na	--	--	--	--	--	--	--	--	--	--	na	**na**
1,2-Diphenylhydrazine[C]	0	--	--	na	5.4E+00	--	--	na	5.4E+00	--	--	--	--	--	--	--	--	--	--	na	**5.4E+00**
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	2.2E-01	5.6E-02	na	2.4E+02	--	--	--	--	--	--	--	--	**2.2E-01**	**5.6E-02**	na	**2.4E+02**
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	2.2E-01	5.6E-02	na	2.4E+02	--	--	--	--	--	--	--	--	**2.2E-01**	**5.6E-02**	na	**2.4E+02**
Endosulfan Sulfate	0	--	--	na	2.4E+02	--	--	na	2.4E+02	--	--	--	--	--	--	--	--	--	--	na	**2.4E+02**
Endrin	0	8.6E-02	3.6E-02	na	8.1E-01	8.6E-02	3.6E-02	na	8.1E-01	--	--	--	--	--	--	--	--	**8.6E-02**	**3.6E-02**	na	**8.1E-01**
Endrin Aldehyde	0	--	--	na	8.1E-01	--	--	na	8.1E-01	--	--	--	--	--	--	--	--	--	--	na	**8.1E-01**

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.9E+04	--	--	na	2.9E+04	--	--	--	--	--	--	--	--	--	--	na	2.9E+04
Fluoranthene	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
Fluorene	0	--	--	na	1.4E+04	--	--	na	1.4E+04	--	--	--	--	--	--	--	--	--	--	na	1.4E+04
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor [C]	0	5.2E-01	3.8E-03	na	2.1E-03	5.2E-01	3.8E-03	na	2.1E-03	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	2.1E-03
Heptachlor Epoxide[C]	0	5.2E-01	3.8E-03	na	1.1E-03	5.2E-01	3.8E-03	na	1.1E-03	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	1.1E-03
Hexachlorobenzene[C]	0	--	--	na	7.7E-03	--	--	na	7.7E-03	--	--	--	--	--	--	--	--	--	--	na	7.7E-03
Hexachlorobutadiene[C]	0	--	--	na	5.0E+02	--	--	na	5.0E+02	--	--	--	--	--	--	--	--	--	--	na	5.0E+02
Hexachlorocyclohexane Alpha-BHC[C]	0	--	--	na	1.3E-01	--	--	na	1.3E-01	--	--	--	--	--	--	--	--	--	--	na	1.3E-01
Hexachlorocyclohexane Beta-BHC[C]	0	--	--	na	4.6E-01	--	--	na	4.6E-01	--	--	--	--	--	--	--	--	--	--	na	4.6E-01
Hexachlorocyclohexane Gamma-BHC[C] (Lindane)	0	9.5E-01	na	na	6.3E-01	9.5E-01	--	na	6.3E-01	--	--	--	--	--	--	--	--	9.5E-01	--	na	6.3E-01
Hexachlorocyclopentadiene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	--	--	--	--	--	--	--	--	na	1.7E+04
Hexachloroethane[C]	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone[C]	0	--	--	na	2.6E+04	--	--	na	2.6E+04	--	--	--	--	--	--	--	--	--	--	na	2.6E+04
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	1.0E+02	1.2E+01	na	--	1.0E+02	1.2E+01	na	--	--	--	--	--	--	--	--	--	1.0E+02	1.2E+01	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	na	5.1E-02	1.4E+00	7.7E-01	na	5.1E-02	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	na	5.1E-02
Methyl Bromide	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Monochlorobenzene	0	--	--	na	2.1E+04	--	--	na	2.1E+04	--	--	--	--	--	--	--	--	--	--	na	2.1E+04
Nickel	0	1.6E+02	1.8E+01	na	4.6E+03	1.6E+02	1.8E+01	na	4.6E+03	--	--	--	--	--	--	--	--	1.6E+02	1.8E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
N-Nitrosodimethylamine[C]	0	--	--	na	8.1E+01	--	--	na	8.1E+01	--	--	--	--	--	--	--	--	--	--	na	8.1E+01
N-Nitrosodiphenylamine[C]	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	--	--	na	1.6E+02
N-Nitrosodi-n-propylamine[C]	0	--	--	na	1.4E+01	--	--	na	1.4E+01	--	--	--	--	--	--	--	--	--	--	na	1.4E+01
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB-1016	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1221	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1232	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1242	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1248	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1254	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1260	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB Total[C]	0	--	--	na	1.7E-03	--	--	na	1.7E-03	--	--	--	--	--	--	--	--	--	--	na	1.7E-03

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Pentachlorophenol [C]	0	7.7E-03	5.9E-03	na	8.2E+01	7.7E-03	5.9E-03	na	8.2E+01	--	--	--	--	--	--	--	--	**7.7E-03**	**5.9E-03**	**na**	**8.2E+01**
Phenol	0	--	--	na	4.6E+06	--	--	na	4.6E+06	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.6E+06**
Pyrene	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.1E+04**
Radionuclides (pCi/l except Beta/Photon)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
Gross Alpha Activity	0	--	--	na	1.5E+01	--	--	na	1.5E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.5E+01**
Beta and Photon Activity (mrem/yr)	0	--	--	na	4.0E+00	--	--	na	4.0E+00	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.0E+00**
Strontium-90	0	--	--	na	8.0E+00	--	--	na	8.0E+00	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**8.0E+00**
Tritium	0	--	--	na	2.0E+04	--	--	na	2.0E+04	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.0E+04**
Selenium	0	2.0E+01	5.0E+00	na	1.1E+04	2.0E+01	5.0E+00	na	1.1E+04	--	--	--	--	--	--	--	--	**2.0E+01**	**5.0E+00**	**na**	**1.1E+04**
Silver	0	2.8E+00	--	na	--	2.8E+00	--	na	--	--	--	--	--	--	--	--	--	**2.8E+00**	**--**	**na**	**--**
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
1,1,2,2-Tetrachloroethane[C]	0	--	--	na	1.1E+02	--	--	na	1.1E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.1E+02**
Tetrachloroethylene[C]	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**8.9E+01**
Thallium	0	--	--	na	6.3E+00	--	--	na	6.3E+00	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**6.3E+00**
Toluene	0	--	--	na	2.0E+05	--	--	na	2.0E+05	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.0E+05**
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
Toxaphene [C]	0	7.3E-01	2.0E-04	na	7.5E-03	7.3E-01	2.0E-04	na	7.5E-03	--	--	--	--	--	--	--	--	**7.3E-01**	**2.0E-04**	**na**	**7.5E-03**
Tributyltin	0	4.6E-01	6.3E-02	na	--	4.6E-01	6.3E-02	na	--	--	--	--	--	--	--	--	--	**4.6E-01**	**6.3E-02**	**na**	**--**
1,2,4-Trichlorobenzene	0	--	--	na	9.4E+02	--	--	na	9.4E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**9.4E+02**
1,1,2-Trichloroethane[C]	0	--	--	na	4.2E+02	--	--	na	4.2E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.2E+02**
Trichloroethylene [C]	0	--	--	na	8.1E+02	--	--	na	8.1E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**8.1E+02**
2,4,6-Trichlorophenol [C]	0	--	--	na	6.5E+01	--	--	na	6.5E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**6.5E+01**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
Vinyl Chloride[C]	0	--	--	na	6.1E+01	--	--	na	6.1E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**6.1E+01**
Zinc	0	1.1E+02	1.1E+02	na	6.9E+04	1.1E+02	1.1E+02	na	6.9E+04	--	--	--	--	--	--	--	--	**1.1E+02**	**1.1E+02**	**na**	**6.9E+04**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, Harmonic Mean for Carcinogens, and Annual Average for Dioxin. Mixing ratios may be substituted for stream flows where appropriate.

Metal	Target Value (SSTV)
Antimony	4.3E+03
Arsenic	9.0E+01
Barium	na
Cadmium	6.2E-01
Chromium III	4.0E+01
Chromium VI	6.4E+00
Copper	4.8E+00
Iron	na
Lead	6.9E+00
Manganese	na
Mercury	5.1E-02
Nickel	1.1E+01
Selenium	3.0E+00
Silver	1.1E+00
Zinc	4.2E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

0.014 MGD DISCHARGE FLOW - STREAM MIX PER "Mix.exe"

Discharge Flow Used for WQS-WLA Calculations (MGI 0.014

	Stream Flows Allocated to Mix (MGD)		Total Mix Flows Stream + Discharge (MGD)	
	Dry Season	Wet Season	Dry Season	Wet Season
1Q10	0.000	0.000	0.014	0.014
7Q10	0.000	N/A	0.014	N/A
30Q10	0.000	0.000	0.014	0.014
30Q5	0.000	N/A	0.014	N/A
Harm. Mean	0.000	N/A	0.014	N/A
Annual Avg.	0.000	N/A	0.014	N/A

Stream/Discharge Mix Values

	Dry Season	Wet Season
1Q10 90th% Temp. Mix (deg C)	25.000	0.000
30Q10 90th% Temp. Mix (deg C)	25.000	0.000
1Q10 90th% pH Mix (SU)	7.700	7.700
30Q10 90th% pH Mix (SU)	7.700	7.700
1Q10 10th% pH Mix (SU)	0.000	N/A
7Q10 10th% pH Mix (SU)	0.000	N/A

	Calculated	Formula Inputs
1Q10 Hardness (mg/L as CaCO3)	88.6	88.6
7Q10 Hardness (mg/L as CaCO3)	88.6	88.6

Ammonia - Dry Season - Acute

90th Percentile pH (SU)	7.700
(7.204 - pH)	-0.496
(pH - 7.204)	0.496
Trout Present Criterion (mg N/I	9.644
Trout Absent Criterion (mg N/L	14.441
Trout Present?	n
Effective Criterion (mg N/L)	14.441

Ammonia - Dry Season - Chronic

90th Percentile Temp. (deg C)	25.000
90th Percentile pH (SU)	7.700
MIN	1.450
MAX	25.000
(7.688 - pH)	-0.012
(pH - 7.688)	0.012
Early LS Present Criterion (mg N	1.821
Early LS Absent Criterion (mg N/	1.821
Early Life Stages Present?	y
Effective Criterion (mg N/L)	1.821

Ammonia - Wet Season - Acute

90th Percentile pH (SU)	7.700
(7.204 - pH)	-0.496
(pH - 7.204)	0.496
Trout Present Criterion (mg N/I	9.644
Trout Absent Criterion (mg N/L	14.441
Trout Present?	n
Effective Criterion (mg N/L)	14.441

Ammonia - Wet Season - Chronic

90th Percentile Temp. (deg C)	0.000
90th Percentile pH (SU)	7.700
MIN	2.850
MAX	7.000
(7.688 - pH)	-0.012
(pH - 7.688)	0.012
Early LS Present Criterion (mg N	3.578
Early LS Absent Criterion (mg N/	5.810
Early Life Stages Present?	y
Effective Criterion (mg N/L)	3.578

0.014 MGD DISCHARGE FLOW - COMPLETE STREAM MIX

Discharge Flow Used for WQS-WLA Calculations (MGI 0.014

	100% Stream Flows Allocated to Mix (MGD)		Total Mix Flows Stream + Discharge (MGD)	
	Dry Season	Wet Season	Dry Season	Wet Season
1Q10	0.000	0.000	0.014	0.014
7Q10	0.000	N/A	0.014	N/A
30Q10	0.000	0.000	0.014	0.014
30Q5	0.000	N/A	0.014	N/A
Harm. Mean	0.000	N/A	0.014	N/A
Annual Avg.	0.000	N/A	0.014	N/A

Stream/Discharge Mix Values

	Dry Season	Wet Season
1Q10 90th% Temp. Mix (deg C)	25.000	0.000
30Q10 90th% Temp. Mix (deg C)	25.000	0.000
1Q10 90th% pH Mix (SU)	7.700	7.700
30Q10 90th% pH Mix (SU)	7.700	7.700
1Q10 10th% pH Mix (SU)	0.000	N/A
7Q10 10th% pH Mix (SU)	0.000	N/A

	Calculated	Formula Inputs
1Q10 Hardness (mg/L as CaCO3) =	88.600	88.600
7Q10 Hardness (mg/L as CaCO3) =	88.600	88.600

Ammonia - Dry Season - Acute

90th Percentile pH (SU)	7.700
(7.204 - pH)	-0.496
(pH - 7.204)	0.496
Trout Present Criterion (mg N/I	9.644
Trout Absent Criterion (mg N/L	14.441
Trout Present?	n
Effective Criterion (mg N/L)	14.441

Ammonia - Dry Season - Chronic

90th Percentile Temp. (deg C)	25.000
90th Percentile pH (SU)	7.700
MIN	1.450
MAX	25.000
(7.688 - pH)	-0.012
(pH - 7.688)	0.012
Early LS Present Criterion (mg N	1.821
Early LS Absent Criterion (mg N/	1.821
Early Life Stages Present?	y
Effective Criterion (mg N/L)	1.821

Ammonia - Wet Season - Acute

90th Percentile pH (SU)	7.700
(7.204 - pH)	-0.496
(pH - 7.204)	0.496
Trout Present Criterion (mg N/I	9.644
Trout Absent Criterion (mg N/L	14.441
Trout Present?	n
Effective Criterion (mg N/L)	14.441

Ammonia - Wet Season - Chronic

90th Percentile Temp. (deg C)	0.000
90th Percentile pH (SU)	7.700
MIN	2.850
MAX	7.000
(7.688 - pH)	-0.012
(pH - 7.688)	0.012
Early LS Present Criterion (mg N	3.578
Early LS Absent Criterion (mg N/	5.810
Early Life Stages Present?	y
Effective Criterion (mg N/L)	3.578

Locust Grove Elementary School DMR pH Data
January 2000 through October 2008

Date Due	Max pH		Sorted pH
10-FEB-2000	7.4		8.8
10-MAR-2000	7.5		8.1
10-APR-2000	7.4		8.1
10-MAY-2000	7.3		8.1
10-JUN-2000	7.3		7.9
10-JUL-2000	8.1		7.9
10-AUG-2000			7.9
10-SEP-2000	7.8		7.8
10-OCT-2000	7.2		7.8
10-NOV-2000	7.6		7.7
10-DEC-2000	7.7		7.7
10-JAN-2001	7.4		7.7
10-FEB-2001	7.3		7.7
10-MAR-2001	7.9		7.7
10-APR-2001	7.7		7.7
10-MAY-2001	7.3		7.7
10-JUN-2001	7.4		7.7
10-JUL-2001	7.3		7.7
10-AUG-2001			7.6
10-SEP-2001	7.9		7.6
10-OCT-2001	7.7		7.6
10-NOV-2001	7.7		7.6
10-DEC-2001	7.5		7.6
10-JAN-2002	7.3		7.6
10-FEB-2002	7.5		7.6
10-MAR-2002	7.1		7.6
10-APR-2002	7.1		7.6
10-MAY-2002	7.5		7.6
10-JUN-2002	7.1		7.6
10-JUL-2002	6.9		7.6
10-AUG-2002			7.5
10-SEP-2002			7.5
10-OCT-2002	7.3		7.5
10-NOV-2002	7.2		7.5
10-DEC-2002	7.3		7.5
10-JAN-2003	7.2		7.5
10-FEB-2003	7.6		7.5
10-MAR-2003	8.1		7.5
10-APR-2003	7.2		7.5
10-MAY-2003	7.4		7.5
10-JUN-2003	7.2		7.5
10-JUL-2003	7.0		7.5
10-AUG-2003			7.4
10-SEP-2003	7.6		7.4
10-OCT-2003	7.6		7.4
10-NOV-2003	7.5		7.4
10-DEC-2003	7.3		7.4
10-JAN-2004	7.8		7.4
10-FEB-2004	7.3		7.4
10-MAR-2004	7.5		7.4
10-APR-2004	7.2		7.4
10-MAY-2004	7.4		7.4
10-JUN-2004	7.2		7.4
10-JUL-2004	7.6		7.4
10-AUG-2004	7.6		7.4
10-SEP-2004	7.3		7.4
10-OCT-2004	7.4		7.4

90th pezcentile

Locust Grove Elementary School DMR pH Data
January 2000 through October 2008

Date Due	Max pH		Sorted pH
10-NOV-2004	7.5		7.4
10-DEC-2004	8.8		7.4
10-JAN-2005	7.4		7.3
10-FEB-2005	7.9		7.3
10-MAR-2005	7.7		7.3
10-APR-2005	7.6		7.3
10-MAY-2005	7.7		7.3
10-JUN-2005	7.6		7.3
10-JUL-2005	7.3		7.3
10-AUG-2005	7.5		7.3
10-SEP-2005	7.4		7.3
10-OCT-2005	7.2		7.3
10-NOV-2005	7.4		7.3
10-DEC-2005	7.2		7.3
10-JAN-2006	7.6		7.3
10-FEB-2006	7.3		7.3
10-MAR-2006	7.3		7.3
10-APR-2006	7.5		7.3
10-MAY-2006	7.2		7.3
10-JUN-2006	7.2		7.3
10-JUL-2006	7.5		7.3
10-AUG-2006	7.1		7.2
10-SEP-2006	7.3		7.2
10-OCT-2006	7.5		7.2
10-NOV-2006	7.4		7.2
10-DEC-2006	7.4		7.2
10-JAN-2007	7.1		7.2
10-FEB-2007	7.1		7.2
10-MAR-2007	7.4		7.2
10-APR-2007	7.6		7.2
10-MAY-2007	7.4		7.2
10-JUN-2007	7.4		7.2
10-JUL-2007	8.1		7.1
10-AUG-2007	7.3		7.1
10-SEP-2007	7.6		7.1
10-OCT-2007	7.5		7.1
10-NOV-2007	7.4		7.1
10-DEC-2007	6.9		7.1
10-JAN-2008	7.0		7.0
10-FEB-2008	6.9		7.0
10-MAR-2008	7.3		6.9
10-APR-2008	7.3		6.9
10-MAY-2008	7.7		6.9
10-JUN-2008	7.4		6.8
10-JUL-2008	6.8		
10-AUG-2008	7.6		
10-SEP-2008	7.3		
10-OCT-2008	7.7		
10-NOV-2008	7.7		
10-DEC-2008			

Locust Grove Elementary School - VA0078131
Effluent Hardness Data Collected From February 1994 to April 1998

Date		Hardness
Feb-94		47.3
Mar-94		36
Apr-94		53
May-94		64.7
Jun-94		93
Jul-94		91.2
Aug-94		71.4
Sep-94		92.4
Oct-94		124
Nov-94		127.6
Dec-94		124.8
Jan-95		108
Feb-95		162
Mar-95		50
Apr-95		104
May-95		138
Jun-95		84
Jul-95		124
Aug-95		96
Sep-95		132
Oct-95		112
Nov-95		123
Dec-95		76
Jan-96		84
Feb-96		90
Mar-96		118
Apr-96		104
May-96		64
Jun-96		208
Aug-96		81
Sep-96		96
Oct-96		150
Nov-96		68
Dec-96		64
Jan-97		74.8
Feb-97		64
Mar-97		112
Apr-97		76
May-97		84
Jun-97		58
Aug-97		72
Sep-97		48
Oct-97		64
Nov-97		72
Dec-97		32
Jan-98		78
Feb-98		76
Mar-98		56
Apr-98		42
May-98		84
Jun-98		64

Average Hardness 88.59216

Define Point of Interest

38,17,44.9 -77,49,52.9
is the Search Point

Submit Cancel

Search Point

- (•) **Change** to "clicked" map point
- ( ) **Fixed** at 38,17,44.9 - 77,49,52.9

Show Position Rings

(•) Yes ( ) No
1 mile and 1/4 mile at the **Search Point**

Show Search Area

(•) Yes ( ) No
2 miles

Search Point is at map center

Base Map Choices

Topography

Map Overlay Choices

Current List: Position, Search

Map Overlay Legend

Position Rings 1 mile and 1 4 mile at the Search Point

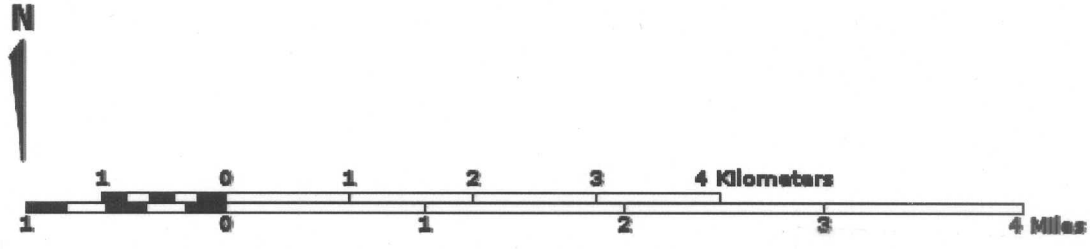
2 mile radius Search Area

Refresh Browser Page

Map Click Pan Id M

Map Scale In Zoom Out

Screen Size Small Size



9

Point of Search 38,17,44.9 -77,49,52.9

Map Location 38,17,44.9 -77,49,52.9

Select **Coordinate System:** ◉ Degrees,Minutes,Seconds Latitude - Longitude

○ Decimal Degrees Latitude - Longitude

○ Meters UTM NAD83 East North Zone

○ Meters UTM NAD27 East North Zone

Base Map source: USGS 1:100,000 topographic maps (see terraserver-usa.com for details)

Map projection is UTM Zone 18 NAD 1983 with left 247602 and top 4247245. Pixel size is 16 meters . Coordinates displayed are Degrees, Minutes, Seconds North and West.Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixles. The map display represents 9600 meters east to west by 9600 meters north to south for a total of 92.1 square kilometers. The map display represents 31501 feet eas to west by 31501 feet north to south for a total of 35.5 square miles.

Black and white aerial photography aquired near 1990 and topographic maps are from the United States Department of the Interior, United States Geological Survey.
Shaded topographic maps are from TOPO! ©2006 National Geographic
http://www.nationa.geographic.com/topo
Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network
All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries

map assembled 2008-11-13 16:30:45 (qa/qc May 21, 2008 10 49 - tn=211093 dist=3218 I)

Virginia Department of Game and Inland Fisheries

11/14/2008 8:56:45 AM

Fish and Wildlife Information Service

VaFWIS Initial Project Assessment Report Compiled on 11/14/2008, 8:56:45 AM

Help

Known or likely to occur within a **2 mile radius of 38,17,45. - 77,49,53.**
in **137 Orange County, VA**

351 Known or Likely Species ordered by Status Concern for Conservation (displaying first 25) (25 species with Status* or Tier I**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database (s)
040129	ST	I	Sandpiper, upland	Bartramia longicauda		BOVA
040293	ST	I	Shrike, loggerhead	Lanius ludovicianus		BOVA
040093	FSST	II	Eagle, bald	Haliaeetus leucocephalus		BOVA
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
100248	FS	I	Fritillary, regal	Speyeria idalia idalia		BOVA
060029	FSSS	III	Lance, yellow	Elliptio lanceolata		BOVA
010077	SS	I	Shiner, bridle	Notropis bifrenatus		BOVA
040266	SS	II	Wren, winter	Troglodytes troglodytes		BOVA
030063	CC	III	Turtle, spotted	Clemmys guttata		BOVA
040094	SS	III	Harrier, northern	Circus cyaneus		BOVA
040204	SS	III	Owl, barn	Tyto alba pratincola		BOVA
030012	CC	IV	Rattlesnake, timber	Crotalus horridus		BOVA
040264	SS	IV	Creeper, brown	Certhia americana		BOVA
040364	SS		Dickcissel	Spiza americana		BOVA
040032	SS		Egret, great	Ardea alba egretta		BOVA
040366	SS		Finch, purple	Carpodacus purpureus		BOVA
040285	SS		Kinglet, golden-crowned	Regulus satrapa		BOVA
040112	SS		Moorhen, common	Gallinula chloropus cachinnans		BOVA
040262	SS		Nuthatch, red-breasted	Sitta canadensis		BOVA
040189	SS		Tern, Caspian	Sterna caspia		BOVA
040278	SS		Thrush, hermit	Catharus guttatus		BOVA
040314	SS		Warbler, magnolia	Dendroica magnolia		BOVA
050045	SS		Otter, northern river	Lontra canadensis lataxina		BOVA
040225		I	Sapsucker, yellow-	Sphyrapicus varius		BOVA

			bellied			
040319		I	Warbler, black-throated green	Dendroica virens		BOVA

To view **All 351 species** View 351

* FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; FS=Federal Species of Concern; SC=State Candidate; CC=Collection Concern; SS=State Special Concern

** I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need

Anadromous Fish Use Streams

N/A

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters

N/A

Cold Water Stream Survey (Trout Streams)
Summary of Recent Observations

N/A

Public Holdings:

N/A

audit no. 211131 11/14/2008 8:56:45 AM Virginia Fish and Wildlife Information Service

12/4/2008 4:54:17 PM

Facility = Locust Grove Elementary School
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 14
WLAc =
Q.L. = .2
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 14
Average Weekly limit = 14
Average Monthly LImit = 14

The data are:

9

11/17/2008 4:53:08 PM

Facility = Locust Grove Elementary School
Chemical = Total Residual Chlorine
Chronic averaging period = 4
WLAa = 19
WLAc = 11
Q.L. = 100
# samples/mo. = 30
# samples/wk. = 8

Summary of Statistics:

observations = 1
Expected Value = 200
Variance = 14400
C.V. = 0.6
97th percentile daily values = 486.683
97th percentile 4 day average = 332.758
97th percentile 30 day average= 241.210
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 16.0883226245855
Average Weekly limit = 9.59676626920107
Average Monthly LImit = 7.9737131838758

The data are:

200

REGIONAL MODELING SYSTEM VERSION 3.2

MODEL SIMULATION FOR THE Locust Grove Elementary School DISCHARGE

TO Cormack Run, UT

COMMENT: Model Run for anticipated expansion

THE SIMULATION STARTS AT THE Locust Grove Elementary School DISCHARGE

********** PROPOSED PERMIT LIMITS **********

FLOW = .014 MGD cBOD5 = 17 Mg/L TKN = 8 Mg/L D.O. = 6 Mg/L

**** THE MAXIMUM CHLORINE ALLOWABLE IN THE DISCHARGE IS 0.011 Mg/L ****

THE SECTION BEING MODELED IS 1 SEGMENT LONG
RESULTS WILL BE GIVEN AT 0.1 MILE INTERVALS

********** BACKGROUND CONDITIONS **********

THE 7Q10 STREAM FLOW AT THE DISCHARGE IS 0.00000 MGD
THE DISSOLVED OXYGEN OF THE STREAM IS 7.794 Mg/L
THE BACKGROUND cBODu OF THE STREAM IS 5 Mg/L
THE BACKGROUND nBOD OF THE STREAM IS 0 Mg/L

********** MODEL PARAMETERS **********

SEG.	LEN. Mi	VEL. F/S	K2 1/D	K1 1/D	KN 1/D	BENTHIC Mg/L	ELEV. Ft	TEMP. ½C	DO-SAT Mg/L
1	1.70	0.332	20.000	1.600	0.500	0.000	360.00	22.00	8.660

(The K Rates shown are at 20½C ... the model corrects them for temperature.)

********** RESPONSE FOR SEGMENT 1 **********

TOTAL STREAMFLOW = 0.0140 MGD
(Including Discharge)

DISTANCE FROM HEAD OF SEGMENT (MI.)	TOTAL DISTANCE FROM MODEL BEGINNING (MI.)	DISSOLVED OXYGEN (Mg/L)	cBODu (Mg/L)	nBODu (Mg/L)
0.000	0.000	6.000	42.500	21.650
0.100	0.100	5.541	41.148	21.419
0.200	0.200	5.267	39.840	21.190
0.300	0.300	5.117	38.573	20.963
0.400	0.400	5.050	37.346	20.739
0.500	0.500	5.039	36.158	20.517
0.600	0.600	5.065	35.008	20.298
0.700	0.700	5.115	33.895	20.081
0.800	0.800	5.180	32.817	19.867
0.900	0.900	5.255	31.774	19.654
1.000	1.000	5.335	30.763	19.444
1.100	1.100	5.418	29.785	19.236
1.200	1.200	5.502	28.838	19.031
1.300	1.300	5.585	27.921	18.827
1.400	1.400	5.668	27.033	18.626
1.500	1.500	5.750	26.173	18.427
1.600	1.600	5.830	25.341	18.230
1.700	1.700	5.907	24.535	18.035

****

REGIONAL MODELING SYSTEM Ver 3.2 (OWRM - 9/90)
08-17-1998 14:59:53

DATA FILE = LOCO1.MOD

********** ********** **********

REGIONAL MODELING SYSTEM VERSION 3.2

DATA FILE SUMMARY

****

THE NAME OF THE DATA FILE IS: LOCO1.MOD

THE STREAM NAME IS: Cormack Run, UT
THE RIVER BASIN IS: Rappahannock River
THE SECTION NUMBER IS: III
THE CLASSIFICATION IS: 4

STANDARDS VIOLATED (Y/N) = N
STANDARDS APPROPRIATE (Y/N) = Y

DISCHARGE WITHIN 3 MILES (Y/N) = N

THE DISCHARGE BEING MODELED IS: Locust Grove Elementary School

PROPOSED LIMITS ARE:
FLOW = .014 MGD
BOD5 = 17 MG/L
TKN = 8 MG/L
D.O. = 6 MG/L

THE NUMBER OF SEGMENTS TO BE MODELED = 1

7Q10 WILL BE CALCULATED BY: DRAINAGE AREA COMPARISON
THE GAUGE NAME IS: Mine Run at Route 611
GAUGE DRAINAGE AREA = 31.8 SQ.MI.
GAUGE 7Q10 = .051704 MGD
DRAINAGE AREA AT DISCHARGE = 0 SQ.MI.

STREAM A DRY DITCH AT DISCHARGE (Y/N) = Y
ANTIDEGRADATION APPLIES (Y/N) = N

ALLOCATION DESIGN TEMPERATURE = 22 ½C

SEGMENT INFORMATION

SEGMENT # 1

SEGMENT ENDS BECAUSE: THE MODEL ENDS

SEGMENT LENGTH = 1.7 MI

SEGMENT WIDTH = .9 FT
SEGMENT DEPTH = .15 FT
SEGMENT VELOCITY = .3 FT/SEC

DRAINAGE AREA AT SEGMENT START = 0 SQ.MI.
DRAINAGE AREA AT SEGMENT END = 5.18 SQ.MI.

ELEVATION AT UPSTREAM END = 400 FT
ELEVATION AT DOWNSTREAM END = 320 FT

THE CROSS SECTION IS: RECTANGULAR
THE CHANNEL IS: MODERATELY MEANDERING

POOLS AND RIFFLES (Y/N) = N

THE BOTTOM TYPE = SILT
SLUDGE DEPOSITS = NONE
AQUATIC PLANTS = NONE
ALGAE OBSERVED = NONE
WATER COLORED GREEN (Y/N) = N

****

REGIONAL MODELING SYSTEM Ver 3.2 (OWRM - 9/90)
08-17-1998 15:00:16

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Orange County, Virginia.

PUBLIC COMMENT PERIOD: XXX, 2009 to 5:00 p.m. on XXX, 2009

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: Orange County School Board, 200 Dailey Drive, Orange, VA 22960, VA0078131

NAME AND ADDRESS OF FACILITY: Locust Grove Elementary School Wastewater Treatment Plant, 31230 Constitution Highway, Orange, VA 22960

PROJECT DESCRIPTION: Orange County School Board has applied for a reissuance of a permit for the public Locust Grove Elementary School Wastewater Treatment Plant. The applicant proposes to release treated sewage wastewaters from school areas at a rate of 0.014 million gallons per day into a water body. The sludge will be disposed of by transporting it to the Massaponax Wastewater Treatment Plant (VA0025658) in Spotsylvania County. The facility proposes to release the treated sewage in the Cormack Run, UT in Orange County in the Rappahannock River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, cBOD, Total Residual Chlorine, Total Suspended Solids, Total Kjeldhal Nitrogen (TKN), Dissolved Oxygen, and *E. coli* bacteria

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. DEQ may hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the documents at the DEQ-Northern Regional Office by appointment.
Name: Joan C. Crowther
Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193
Phone: (703) 583-3925 E-mail: jccrowther@deq.virginia.gov Fax: (703) 583-3841

2006 TMDL
Fact Sheet

Assessment Unit Description:

Waterbody Name:	Mine Run
Waterbody Type and Size:	RIVER - 9.95 MILES
Waterbody Location:	Segment begins at the confluence with Cormack Run, approximately 0.6 rivermile upstream of Route 20, and continues downstream until the confluence with the Rapidan River.
Assessment Unit:	VAN-E17R_MIR01A00
Assessment Category:	EPA Category 4A: Impaired or threatened for one or more designated uses but does not require a TMDL because the TMDL for specific pollutant(s) is complete and US EPA approved.
Impairments:	Escherichia coli
Sources:	Grazing in Riparian or Shoreline Zones; Impacts from Land Application of Wastes; Livestock (Grazing or Feeding Operations); Runoff from Forest/Grassland/Parkland; Sewage Discharges in Unsewered Areas; Wastes from Pets; Waterfowl; Wildlife Other than Waterfowl

Comments: Class III, Section 4.

DEQ fish tissue/sediment station 3-MIR004.00 and ambient water quality monitoring station 3-MIR004.05, both at Route 611. Citizen monitoring stations 3MIR-O2-URWP and 3MIR-O2-SOS, which formerly used the incorrect stream code MIN. The correction was made for the 2006 assessment.

Historical Note: This segment was included in Attachment C (Plaintiff's list of waters that were added to the 303(d) list in 2002) for fecal coliform.

E.coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. A bacteria TMDL for the Mine Run watershed was submitted to the U.S. EPA and approved November 15, 2005. The sources of bacteria requiring reductions are pet, livestock and wildlife waste delivered directly to the stream or via pastureland or forest, human contributions from straight pipes and failing septic systems, and biosolid application.

Citizen monitoring finds a low probability of adverse conditions for biota. The aquatic life, fish consumption, and wildlife uses are considered fully supporting.

2002 TMDL ID for this segment was VAN-E17R-01. Segment was formerly identified with a bacterial impairment due to exceedances of the fecal coliform criterion, which is no longer applicable to this reach, as at least twelve E.coli samples have been collected.

DEQ
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

2008 Impaired Waters

Category 4 & 5 by 2008 Impaired Area ID*

Rappahannock River Basin

Cause Group Code: **E17R-01-BAC - Mine Run**

Location:	Begins at the confluence with Cormack Run, approximately 0.6 rivermile upstream of Route 20, and continues downstream until the confluence with the Rapidan River.
City/County	Orange Co.
Use(s):	Recreation
Cause(s) / VA Category:	Escherichia coli / 4A

E. coli bacteria criterion excursions (7 of 19 samples - 36.8%) from station 3-MIR004.05, at Route 611.

Assessment Unit	Water name	Location Description	Cause Category	Cause Name	Cycle First Listed	TMDL Schedule	Size
VAN-E17R_MIR01A00	Mine Run	Segment begins at the confluence with Cormack Run, approximately 0.6 rivermile upstream of Route 20, and continues downstream until the confluence with the Rapidan River.	4A	Escherichia coli	2002	2005	9.93

	Estuary (sq. miles)	Reservoir (acres)	River (miles)
Escherichia coli / 4A Total impaired size by water type:			9.93

Mine Run

Impaired area ID: VAN-E17R-01

Recreation

Sources:

- Grazing in Riparian or Shoreline Zones
- Impacts from Land Application of Wastes
- Livestock (Grazing or Feeding Operations)
- Runoff from Forest/Grassland/Parkland
- Sewage Discharges in Unsewered Areas
- Wastes from Pets
- Waterfowl
- Wildlife Other than Waterfowl

* Narrative descriptions, location and city/county describe the entire extent of the impairment. Sizes may not represent the total size of the impairment.

Revised 2/2003

State "Transmittal Checklist" to Assist in Targeting
Municipal and Industrial Individual NPDES Draft Permits for Review

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	Locust Grove Elementary School Wastewater Treatment Plant
NPDES Permit Number:	VA0078131
Permit Writer Name:	Joan C. Crowther
Date:	December 9, 2008

Major [ ] **Minor** [X] **Industrial** [ ] **Municipal** [X]

I.A. Draft Permit Package Submittal Includes:	**Yes**	**No**	**N/A**
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?		X	
6. A Reasonable Potential analysis showing calculated WQBELs?		X	
7. Dissolved Oxygen calculations?	X		
8. Whole Effluent Toxicity Test summary and analysis?		X	
9. Permit Rating Sheet for new or modified industrial facilities?		X	

I.B. Permit/Facility Characteristics	**Yes**	**No**	**N/A**
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet **or** permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?	X		
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet **or** permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?		X	
a. Has a TMDL been developed and approved by EPA for the impaired water?	X		
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?	X		
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?		X	

I.B. Permit/Facility Characteristics – cont.	Yes	No	N/A
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?		X	
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?		X	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		

Part II. NPDES Draft Permit Checklist

Region III NPDES Permit Quality Checklist – for POTWs

(To be completed and included in the record only for POTWs)

II.A. Permit Cover Page/Administration	**Yes**	**No**	**N/A**
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	**Yes**	**No**	**N/A**
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?	X		

II.C. Technology-Based Effluent Limits (POTWs)	**Yes**	**No**	**N/A**
1. Does the permit contain numeric limits for ALL of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	X		
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?			X
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

II.D. Water Quality-Based Effluent Limits	**Yes**	**No**	**N/A**
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?		X	
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a "reasonable potential" evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?	X		
d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?	X		
e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?	X		

II.D. Water Quality-Based Effluent Limits – cont.	Yes	No	N/A
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?	X		

II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			X
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	X		
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?		X	
4. Does the permit require testing for Whole Effluent Toxicity?		X	

II.F. Special Conditions	Yes	No	N/A
1. Does the permit include appropriate biosolids use/disposal requirements?	X		
2. Does the permit include appropriate storm water program requirements?		X	

II.F. Special Conditions – cont.	Yes	No	N/A
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?		X	
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?			X
5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		X	
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?		X	
a. Does the permit require implementation of the "Nine Minimum Controls"?			X
b. Does the permit require development and implementation of a "Long Term Control Plan"?			X
c. Does the permit require monitoring and reporting for CSO events?			X
7. Does the permit include appropriate Pretreatment Program requirements?		X	

II.G. Standard Conditions	Yes	No	N/A
1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	X		

List of Standard Conditions – 40 CFR 122.41

Duty to comply	Property rights	Reporting Requirements
Duty to reapply	Duty to provide information	Planned change
Need to halt or reduce activity	Inspections and entry	Anticipated noncompliance
not a defense	Monitoring and records	Transfers
Duty to mitigate	Signatory requirement	Monitoring reports
Proper O & M	Bypass	Compliance schedules
Permit actions	Upset	24-Hour reporting
		Other non-compliance

2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?		X	

Part III. Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	Joan C. Crowther
Title	VPDES Permit Writer
Signature	
Date	12/9/08